WILDLAND FIRE MANAGEMENT PLAN

HOPPER MOUNTAIN NATIONAL WILDLIFE REFUGE

Ventura, California

2001

2001 WILDLAND FIRE MANAGEMENT PLAN

HOPPER MOUNTAIN NATIONAL WILDLIFE REFUGE

Prepared: _____ 9-17-01

Bill Molumby — Date
Fire Management Officer
Southern California Ecoregion

_____ 9/20/01

Marc Weitzel — Date
Project Leader
Hopper Mountain NWR Complex

Concurred: _____ 9/24/01

Pam Ensley — Date
Regional Fire Management Coordinator
Pacific Region, US Fish and Wildlife Service

Approved: _____ 9-26-01

Steve Thompson — Date
Acting Manager
California/Nevada Operations, US Fish and Wildlife Service

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

When approved, this document will become the Hopper Mountain National Wildlife Refuge (NWR) Fire Management Plan. Major components include:

- implementation of Habitat Management Plan guidance relative to fire management.
- format changes under the direction of Fire Management Handbook (Release Date 6/1/00).
- guidance for wildland fire pre-suppression and suppression actions.

This plan is written to provide guidelines for appropriate management of the wildland fire program at Hopper Mountain National Wildlife Refuge (NWR). Hopper Mountain NWR is managed by the US Fish and Wildlife Service (Service) as a unit of the Hopper Mountain National Wildlife Refuge Complex (HMNWRC). All wildland fires starting or spreading onto the Hopper Mountain NWR will be controlled using appropriate suppression methods. Those methods include aggressive initial attacks. Prescribed fire will not be used on the Hopper Mountain NWR until effects of recent wildland fires can be determined and environmental planning completed. At that time, the Fire Management Plan will be amended with the appropriate guidelines. Wildland Fire Use will not be implemented on this Refuge. This is due to the escape potential and values at risk adjacent to the Hopper Mountain NWR. Debris removal by piling and burning will be used as a tool based on the Services categorical exclusion for routine maintenance activities. Opportunities to conduct fire research will be explored and encouraged which would benefit the condor recovery program.

INTRODUCTION

This plan will establish a Fire Management Plan for Hopper Mountain NWR. This plan will meet the requirements of the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA). The Comprehensive Conservation Plan for Hopper Mountain NWR has not been completed to date. The California condor is the only known listed or candidate species to be present on this refuge. A Section 7 informal consultation was initiated with a staff biologist from the Ventura Field Office of the Fish and Wildlife Service. After a review of the proposed actions contained within this plan, it was determined that the actions may affect, but are not likely to adversely affect the endangered California condor. Therefore, an Intra-Service Section 7 Biological Evaluation was completed and submitted for concurrence to the Ventura Fish and Wildlife Field Office (Appendix C). An Environmental Action Statement for a Categorical Exclusion was completed and signed by the Project Leader (Appendix C).

As required by the U. S. Fish and Wildlife Service (USFWS), this plan is written as an operational guide for managing the refuge's wildland fire program. It defines levels of protection needed to ensure safety, protect facilities and resources, and restore and perpetuate natural processes, given current understanding of the complex relationships in natural ecosystems. It is written to comply with a service-wide requirement that refuges with burnable vegetation develop a fire management plan (620 DM 1).

The Hopper Mountain NWR was established in 1974. Its stated purpose is to conserve plant and animal species listed as threatened and/or endangered under the Endangered Species Act of 1973. Specifically, the refuge was established for the protection of the endangered California condor and its habitat. The refuge plays an integral part in the California Condor Recovery Program.

COMPLIANCE WITH USFWS POLICY

Hopper Mountain NWR was established on December 18, 1974 to conserve plants, fish, and wildlife which are listed as endangered or threatened species under the Endangered Species Act of 1973 (16 U.S.C. 1534-1543) as amended. The Refuge is specifically managed to provide habitat for and contribute toward the recovery of the endangered California condor. The refuge and the adjacent Sespe Condor Sanctuary are an important part of the limited range of this species. Important roosting, foraging, and nesting grounds are found within the Refuge and adjacent areas. Also found near these key sites are grasslands historically used by California condors.

The Department Manual, DM 910 (USDI 1997) states the following regarding wildland fires:

> Wildfires may result in loss of life, have detrimental impacts upon natural resources, and damage to or destruction of man-made developments. However, the use of fire under carefully defined conditions is to be a valuable tool in wildland management. Therefore, all wildfires within the Department will be classified either as wildfire or as prescribed fires.
>
> Wildfires, whether on lands administered by the Department or adjacent thereto, which threaten life, man-made structures, or are determined to be a threat to the natural resources or the facilities under the Department's jurisdiction, will be considered emergencies and their suppression given priority over normal Departmental programs.
>
> Bureaus will give the highest priority to preventing the disaster fire - the situation in which a wildfire causes damage of such magnitude as to impact management objectives and/or socio-economic conditions of an area. However, no wildfire situation, with the possible exception of threat to human survival, requires the exposure of firefighters to life threatening situations. Within the framework of management objective and plans, overall wildfire damage will be held to the minimum possible giving full consideration to (1) an aggressive fire prevention program; (2) the least expenditure of public funds for effective suppression; (3) the methods of suppression least damaging to resources and the environment; and (4) the integration of cooperative suppression actions by agencies of the Department among themselves or with other qualified suppression organizations.
>
> Prescribed fires...may be used to achieve agency land or resource management objectives as defined in the fire management plans....Prescribed fires will be conducted only when the following conditions are met:
>
> a. Conducted by qualified personnel under written prescriptions.
> b. Monitored to assure they remain within prescription.
>
> Prescribed fires that exceed the limits of an approved prescribed fire plan will be reclassified as a wildfire. Once classified a wildfire, the fire will be suppressed and will not be returned to prescribed fire status.

The authority for funding (normal fire year programming) and all emergency fire accounts is found in the following authorities:

> Section 102 of the General Provisions of the Department of Interior's annual Appropriations Bill provides the authority under which appropriated monies can be expended or transferred to fund expenditures arising from the emergency prevention and suppression of wildland fire.

P.L. 101-121, Department of the Interior and Related Agencies Appropriation Act of 1990, established the funding mechanism for normal year expenditures of funds for fire management purposes.

31 US Code 665(E)(1)(B) provides the authority to exceed appropriations due to wildland fire management activities involving the safety of human life and protection of property.

Authorities for procurement and administrative activities necessary to support wildland fire suppression missions are contained in the Interagency Fire Business Management Handbook.

The Reciprocal Fire Protection Act of May 27, 1955 (42 USC 815a; 69Stat 66) provides authorities to enter into agreements with other Federal bureaus and agencies; with state, county, and municipal governments; and with private companies, groups, corporations, and individuals regarding fire activities.

Authority for interagency fire suppression can be found within interagency agreements between the Bureau of Land Management, Bureau of Indian Affairs, National Park Service, U.S. Fish and Wildlife Service of the United States Department of the Interior, and the Forest Service of the United States Department of Agriculture (1996).

FIRE MANAGEMENT OBJECTIVES

The Hopper Mountain NWR fire management objectives are:

- To protect life, property, and natural resources from unwanted fire.
- To restore wildland fire to the appropriate historic return interval to accomplish resource management objectives within the framework of a natural ecological process.
- To develop and implement a process for collection, analysis, and application of fire management information needed for sound management decisions.
- To restore and perpetuate a native ecosystem through fire management which is complimentary to the purpose of the Refuge.

DESCRIPTION OF REFUGE

Hopper Mountain NWR has a diversity of habitat types among its 2,471 acres (Figure 1). The habitats and fuel types are as follows: 900 acres of annual grasslands, 1,049 acres of chaparral and coastal sage scrub, 350 acres of hardwood groves (oak and California black walnut), 169 acres of riparian habitat, and 3 acres of freshwater marsh (Figure 2). While a fire in 1997 burned through the refuge consuming much of the vegetation, new growth indicates a return to the original ecosystem structure.

Neighboring landowners are the: Los Padres National Forest (LPNF), and two oil companies, Hunter Resources and Petroleum Engineering, Inc. Both companies have mineral rights and actively extract oil and natural gas from beneath the refuge. A total of 3 well pads containing 14 operating wells and storage facilities are located on the refuge as well as an additional pad with no facilities (Figure 3).Other landowners in the area include cattle ranchers and private homeowners in the town of Fillmore.

The Hopper Mountain NWR is a highly visible and important refuge both nationally and internationally due to its role in the recovery of the California Condor. Activities on and near the Refuge receive academic, public and private attention. Local relations are positive and there is substantial support for Refuge programs.

A supplemental feeding program is currently in effect on the Refuge to help augment natural available food in the area. California condors currently use the Refuge for foraging and roosting, and have been observed displaying courtship behavior on the Refuge. Condors are also housed on the Refuge in the flight pen of the chick rearing facility until they are released at other established sites. The facility is also used to temporarily house sick or injured birds. The condor recovery efforts are aimed at attaining a goal of a self-sustaining population of 150 individual California condors within California. As of August 2001, there were 53 condors in the wild.

Many species of migratory birds, both game and non-game, are found throughout the Refuge and its surroundings. The diverse habitats and their ecotones found within the Refuge are important in achieving the Regional goal of providing migratory bird habitat. With the exception of the California condors, there are no other known threatened or endangered species of plants or animals found on the Refuge.

Past and potential future projects on Hopper Mountain NWR include a banding station for nationwide Monitoring Avian Productivity and Survivorship (MAPS), herptile surveys, wetland restoration and enhancement projects, facilities renovation, and exotic plant eradication.

CULTURAL RESOURCES

The area of the Refuge was historically occupied by the Chumash Indians. A known archaeological site is located on the Refuge in a rock formation known as the pinnacles (Figure 2). Pictographs are present at this site in a shallow sandstone shelter. Shell beads and a deposit of asphaltum were also discovered at this site. A survey for cultural resources failed to identify any other areas of significance to Native Americans. Also to be protected are some Native American resources in the form of plant fibers used in traditional basketry and ceremonies.

The ranch site is a historic site established in the 1930's by the Percy family. The original ranch house, bunk house, barn, and miscellaneous storage sheds still exist and are in use by refuge personnel. Since there's clear evidence of both historic and pre-historic use of the area, any fire suppression activities must be conducted according to cultural resource standards of preservation.

FISH AND WILDLIFE

The only known threatened or endangered species of wildlife on the Refuge is the endangered California condor (*Gymnogyps californianus*). California condors are members of the vulture family. They are the largest flying bird in North America. Prior to the arrival of pioneers the condor's range extended along the Pacific coast from British Columbia south through Baja California. By 1940 the range had been reduced to the coastal mountains of southern California with nesting occurring primarily in the chaparral-covered mountains of the Los Padres National Forest and foraging in the grasslands of the San Joaquin Valley. California condors remain within their home range year round. They require large areas of roosting, nesting, and particularly foraging habitat to survive. Roosting condors require large old-growth trees, snags or isolated rocky outcrops and cliffs. For nesting, shallow caves and rock crevices on cliffs with minimal disturbance is required. Large areas of open grasslands and oak savanna foothills that support populations of large mammals such as deer and cattle are required for foraging. Condors may forage up to 150 miles in one day in search of food. The California condor was near extinction until the captive-breeding program began in 1981. Since then, the population in the wild has grown.

The Hopper Mountain Refuge provides foraging and roosting habitat for the condors, while the adjacent Sespe Condor Sanctuary provides nesting and roosting habitat for the condors. The Refuge also provides habitat for over 130 species of birds, mammals, and reptiles including the southwestern pond turtle, a California species of special concern. The southwestern pond turtle (*Clemmys marmorata pelllida*) is mostly aquatic and will move to upland areas to lay eggs. They winter in underground burrows in upland habitats. In warm months, they will bask on rocks and logs near slow moving streams.

VEGETATION

More than 200 plant species have been documented on the Refuge. Annual grasses and chaparral communities cover the majority of the land on the Refuge. Annual grassland species include wild oats (*Avena sativa*), needle grass (*Bromus rigidus*), and various forbs which occur on the more developed, deeper soils. The wild oats are non-native, but do provide necessary habitat and soil stabilization. The primary plant community is chaparral which includes: chamise (*Adenostoma fasciculatum*), poison oak (*Toxicodendron diversilobum*), California holly (*Heteromeles arbutifolia*), manzanita (*Arctostaphylos* spp.) and yucca (*Yucca whipplei*). This community provides a dense, mid-level cover habitat which is native to the southern California ecosystems. The predominant tree species are scrub oak (*Quercus* spp.), and a small isolated stand of big-coned Douglas-fir (*Pseudotsuga macrocarpa*). Both are natives and support necessary habitat functions.

Of special importance to the Refuge are some of the last significant stands of Southern California black walnut (*Juglans californica californicus*). The appropriate use of fire would greatly benefit the extension of this species by clearing lighter understory fuels thus creating openings for new seedlings to become established. Incorrect application by way of time of year or high intensities could damage trunks and limbs, paving the way for insect attack or rot and decay.

Fire may have a negative effect on the Refuge's native vegetation community by promoting the spread of horehound (*Marrubium vulgare*), a noxious weed for which fire is part of its reproductive biology. The Refuge is currently taking an active role in slowing the spread of this noxious, non-native weed through mechanical and chemical treatments.

TOPOGRAPHY

The Hopper Mountain NWR is located on the upper third of the range generally known as the Santa Ynez Mountains and specifically as the Topatopa Mountains. They are a coastal range, running east and west, characterized by steeply rising slopes. Approximately 80% of the Refuge is on slopes with a grade of 30-50%, with the remainder on gentle slopes of 2-9% grade. The Refuge sits within elevations ranging from 1,600 feet to over 3,900 feet with a southwest exposure.

CLIMATE

Weather on Hopper Mountain NWR is characterized by long, dry, hot summers with fairly mild winters. Most precipitation occurs from December to April with an average of 20-25 inches and comes in the form of rain, although light snowfalls are not uncommon in the higher elevations. Temperatures range from a high of 105 degrees F in the summer to a low 20 degrees F in the winter months. Santa Ana winds are common in the fall and winter months, generating wind speeds of up to 70 mph and relative humidity in the single digits are not uncommon. These winds are characterized by low humidity and are the single most significant fire weather event for the area. Southern California fire weather is influenced by the Pacific Ocean in general and its severity is dictated by the seasonal, migratory, subtropical high pressure cell in the eastern Pacific known as the "Pacific High." In the summer, this pressure center sets up off the northern coast and causes storms to track north of California. This high pressure maintains relative mild to high temperatures, no precipitation, and low humidity. Cold fronts are typically not a factor to fire weather in southern California as they are in most of the United States. As winter approaches, this high moves south and permits storms to once again track into southern California and bring winter rains.

The southern California climate is generally characterized by wet winters and dry summers, with mild seasonal changes. Diurnal wind flows are typically up slope/on shore during the day and down slope/off shore at night. Peak burning hours are from 1:00p.m. to 4:00 p.m. typically. Periods of lowest fire activity are during the midnight to daybreak period. Exceptions are inversions and "thermal belts," weather features which either create stability and lower fire activity during morning hours or continue fire activity during night time periods. Local expertise is important for evaluating these phenomena.

Periods of above 100 degree temperatures, relative humidity below 10% and increased instability are occasional during July, August and September when a second high pressure system develops over the western U.S. These periods of "extreme" fire weather are predicted by the Riverside fire weather office. They can last 2 to 10 days and cause fire spreads and spotting to increase significantly.

A significant weather event, the Santa Ana wind, is common during the fall months and coincides with the end of summer drought. This foehn wind event is similar to the chinook, east, and mono winds found in other parts of the country. Air flows from the high to the low, funneled by the passes and canyons. Temperatures are not a factor with this wind event since they are dramatically influenced by the adiabatic lapse rate and can range from 30 to 90 degrees F depending on the elevation. Significant factors which warrant "Red Flag Warnings" is humidity below 10 percent and winds in excess of 20 mph from the northeast. This wind event usually lasts from 3 to 5 days. Wind and humidity is not affected by night, but will increase downhill flows on lee sides of passes and canyons.

Another wind event peculiar to the Santa Barbara/Ventura county area is a feature called "Sun Downers." This wind resembles Santa Ana winds, but generally does not last more than one night.

SOILS

Several soil types exist on the Refuge with three main types predominating: Calleguas shale loam, sedimentary, and Los Osos clay loam. Most of the soil types found on the Hopper Mountain NWR and surrounding slopes are considered highly erodible due to slope steepness and high silt content. High surface runoff, high erosion and slope failure are common after heavy rains, but exaggerated when vegetative cover has been removed whether due to mechanical disturbance or burning.

WATER SOURCES AND STORAGE

Several water sources drain from the main housing complex into Hopper Creek. One such source is a spring located below the northeast portion of the main house. This spring has been isolated and modified somewhat, so that water may be pumped into a 22,000 gallon tank, located on a hill above the house, and is used for the general household use of the Refuge. The tank has been modified so that only 5,000 gallons can be used for domestic use at a time, while the remaining water is reserved for fire suppression.

AIR QUALITY

The Refuge is within the South Coast Air Quality District. Historically, this air basin has had difficulty in meeting state air quality standards relating to ozone, carbon monoxide, and particulate matter. Due to recent establishment and enforcement of air quality regulations the basins air quality has improved. The air quality at the Refuge is considered good to moderate depending on the time of the year due to its elevation and air flow patterns. Inversion layers are known to occur in the valley below, especially during the summer months, creating moderately unhealthy air for the residents of Fillmore, which would be compounded by smoke production from a wildland fire.

STRUCTURES AND FACILITIES

Located on the Hopper Mountain NWR are a group of structures which serve as a base of operations for the California Condor Recovery Program. These structures are part of a historic cattle ranch (Figures 4 and 5), and include the main ranch house (1,695-sq.ft.), a barn (1,500-sq.ft.), cabin (922-sq.ft.), 2 trailers (16 ft x 100 ft each), and several sheds for storage, all wood frame construction. There is no electricity to the site; however, there is a gas powered electric generator and phone line. Propane is the only source of heating and cooking and refrigeration which is stored in a 900 gallon storage tank (Figure 5).

Additionally, the Refuge includes a Condor Rearing Facility, constructed in 1995, that provides a naturalistic environment for captive-bred condors. The rearing facility, which was recently rehabilitated after being damaged in the 1997 Hopper Fire, consists of 6 simulated nest caves and a 30' x 50' flight pen. This facility is used to hold condor chicks before they are released into the wild and to hold injured or sick condors until they are able to be reintroduced back into the wild.

Refuge staff and volunteer use these structures and facilities year-round (i.e., when tracking condors on the Refuge and on neighboring lands, when condors are in captivity on the Refuge, and during release of condors into the wild at the neighboring Sespe Condor Sanctuary). These facilities, as well as any personnel, will need to be protected in the event of a fire at the Hopper Mountain Refuge.

Other facilities within and neighboring the Refuge boundary which may need to be protected in the event of fire, are facilities owned and operated by three oil/gas extracting companies: Seneca Resources Corporation, Hunter Resources Corporation, and Santa Fe Energy Operating Partners, L.P. The oil and gas facilities operated by these extracting companies are a series of oil pumping wells and their pads (Figure 3). In addition to the USFWS managed refuge, other adjacent land management agencies include the USDA Forest Service, Los Padres National Forest, Ojai Ranger District, and the Bureau of Land Management (BLM). The neighboring BLM land is managed by the BLM Bakersfield Field Office (BLMBD) and is leased to oil companies for extraction of oil and gas.

Figure 1. Refuge Map.

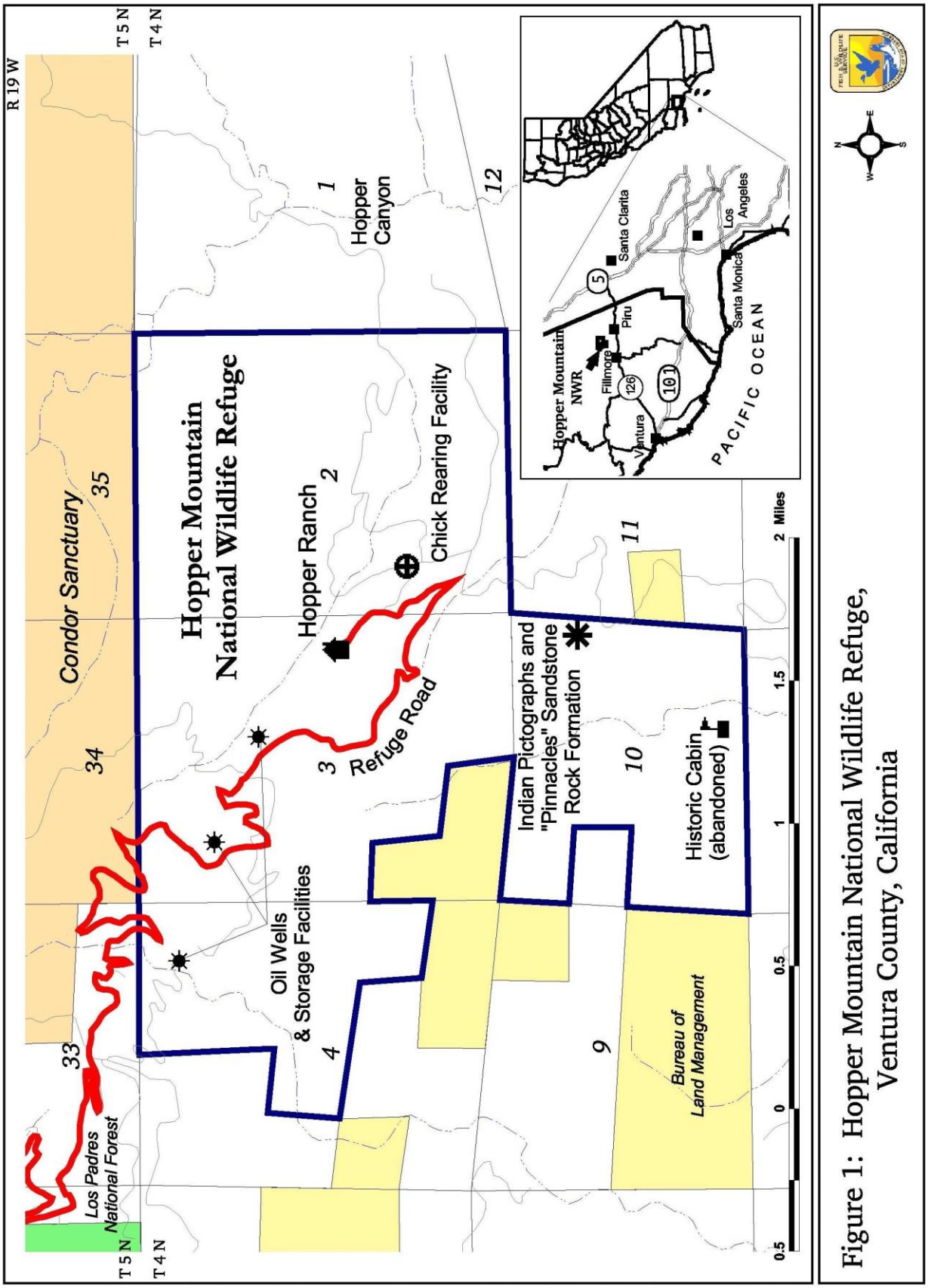


Figure 1: Hopper Mountain National Wildlife Refuge,
Ventura County, California

Figure 2. Vegetation and Fuel Types.

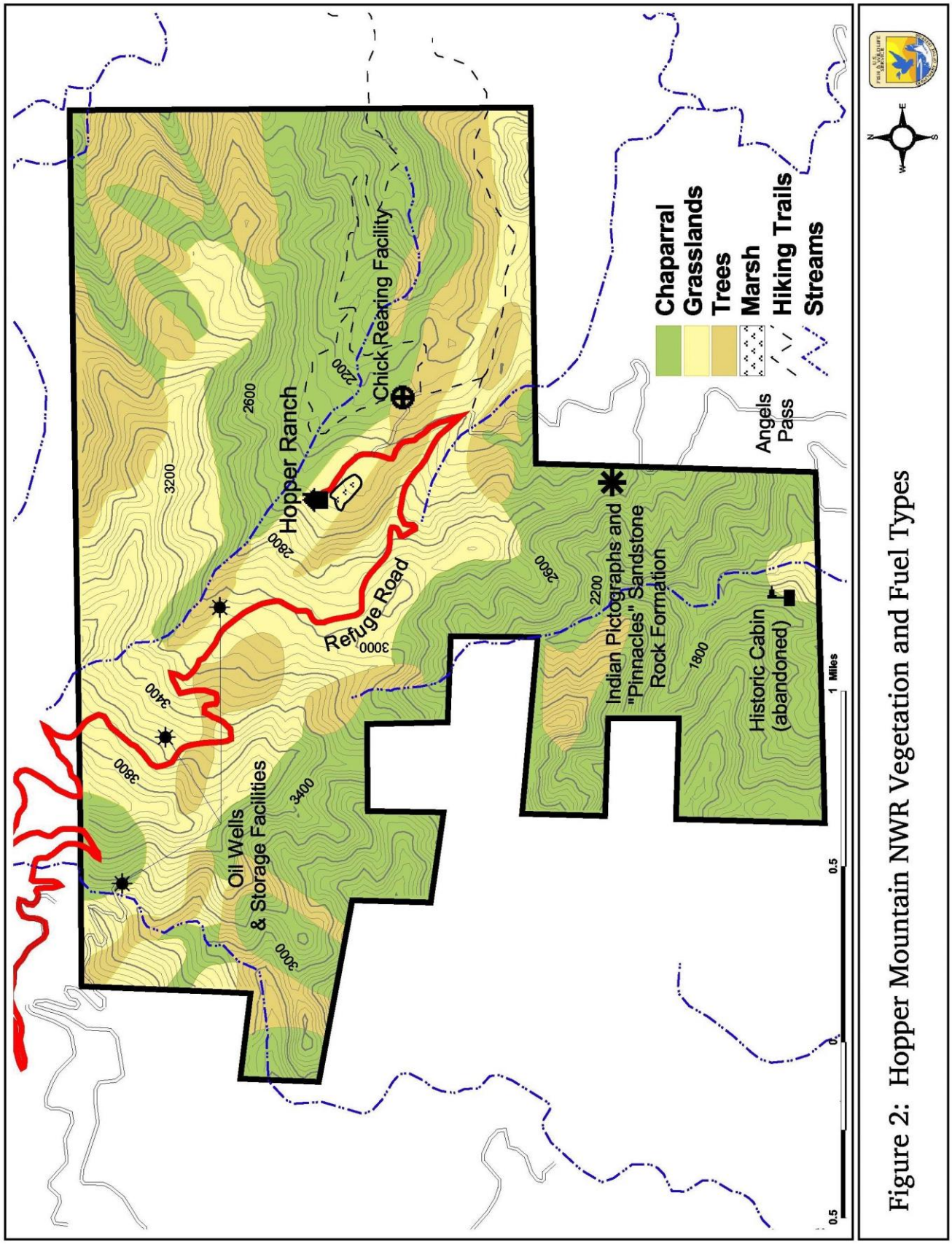


Figure 3. Oil Pads.

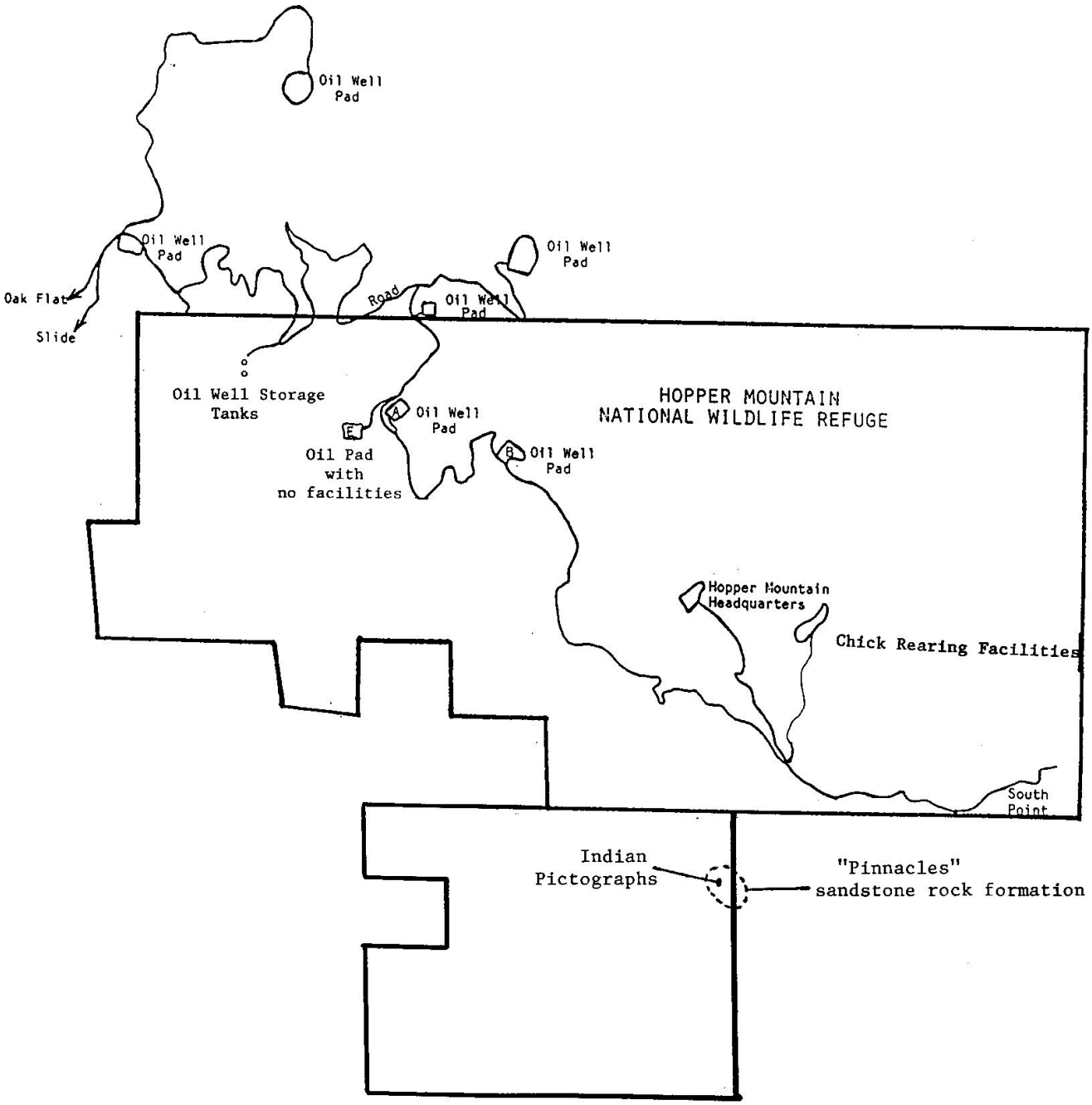


Figure 4. Site Layout.

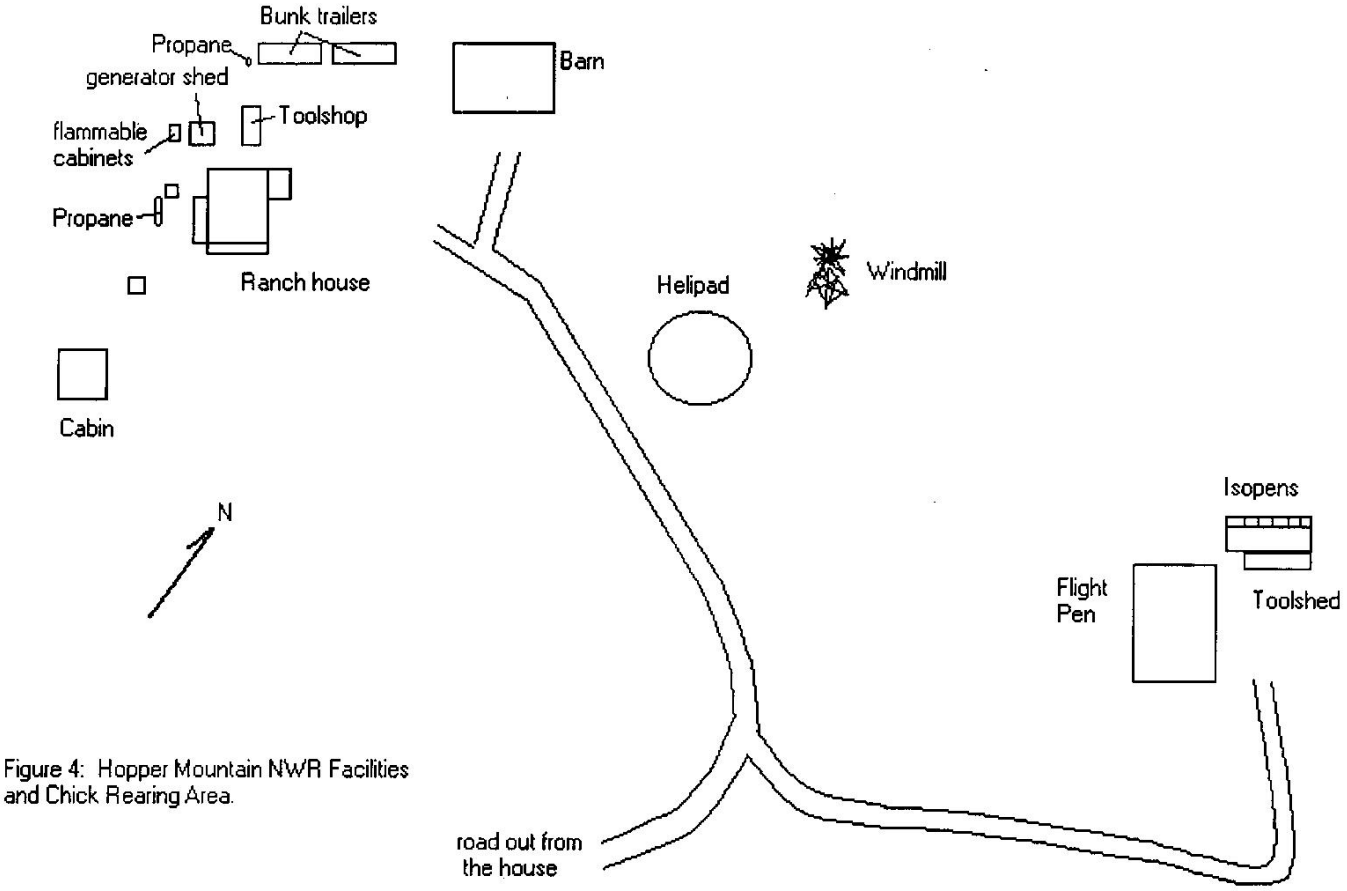
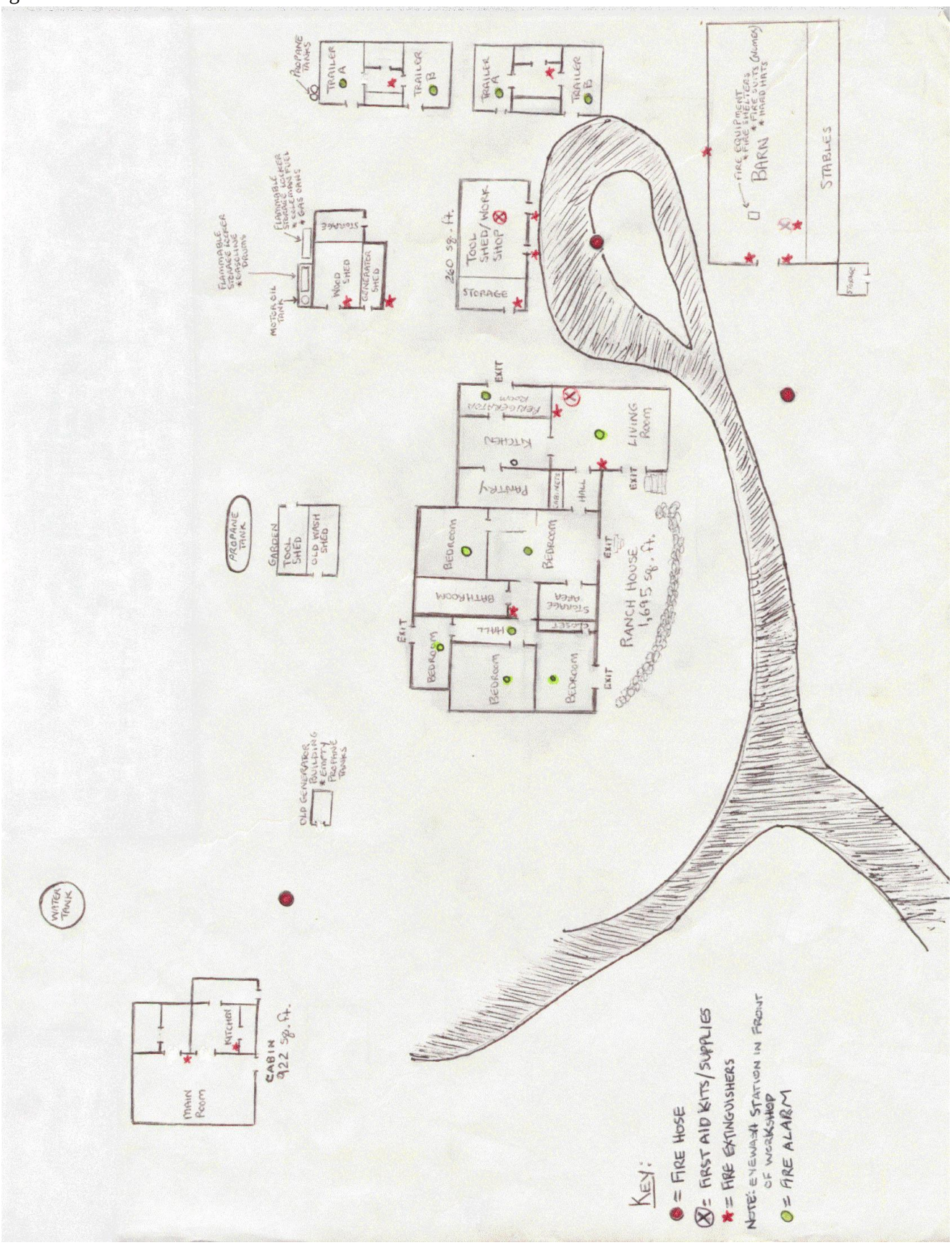


Figure 4: Hopper Mountain NWR Facilities and Chick Rearing Area.

Figure 5. Structure Location.



WILDLAND FIRE MANAGEMENT SITUATION

HISTORIC ROLE OF FIRE

Fire is a natural part of the Mediterranean ecosystem (Mooney 1977). The main source of historic wildland fire for this area was lightning and Native American burning associated with agriculture and hunting (Lewis 1973). The Los Padres National Forest (NF) fire records for the last 90 years document lightning ignited fires throughout the range during the summer months. Fire is part of the natural cycle of the grass, chaparral, and hardwood ecosystems (Keeley 1982). While this ecosystem has evolved over time to accommodate varying degrees of intensities and return intervals, recent history has shown changes to both due to man's activities (Dodge 1975). An analysis of fire causes from 1990 to 2000 on the Ojai Ranger District of the Los Padres NF reveals 90% of the fires were due to human cause. Lightning accounted for 9 of the 79 fires during that period (Appendix U).

Pre-settlement Fires

Natural fires on Hopper Mountain NWR were primarily caused by lightning. In recent history, there have been two naturally occurring fires due to lightning. One has occurred since the Refuge was established and went out naturally. The other occurred in 1977 and was suppressed by refuge personnel using hand tools. Both of these fires were less than 1 acre. This is not an accurate picture of the natural fire return interval since many other starts have occurred adjacent to the Refuge which were suppressed before they could move onto the Refuge as documented by Los Padres National Forest records.

Aboriginal fires is the second set of fire causes, those intentionally set by the Native American inhabitants of the area for the purpose of improving hunting, foraging, and otherwise personal needs. While these are not naturally occurring, it is felt they have played a role in the ecosystem development, yet to what extent is unclear (Lewis 1973).

The seasonality of fire must be identified, since timing can have an impact on the health of the ecosystem. Lightning fires typically occur in the mid to late summer months as monsoonal moisture moves north from the Gulf of Mexico. This event combined with the dry forest fuels presents an opportunity for a lightning-ignited fire. While lightning is possible during other times of the year, fuel moisture and precipitation amounts reduce the chance of an ignition and subsequent fire spread of any consequence.

Post-settlement Fire History

The third type of fire cause is termed the "modern era" and spans from the late 1800's to present. These fires are human-caused and are either accidental, agricultural, or arson. The first recorded fire on the Refuge was reported as occurring in 1917. There are no records to document the cause, size, or action taken. Six other human caused fires have been recorded for the Refuge. One fire occurred in 1978 was caused by a muffler spark burning less than one acre. In 1988, a fire started near an oil rig, igniting it, and spread to several oil storage trailers. This fire was contained on the immediate oil pad by Ventura County Fire Department; however, a special oil well suppression team had to extinguish the fire burning inside the oil well. This fire took approximately one week to put out. The cause of the fire was determined to be due to a special fan that is used during the re-drilling process. The fan was suspected to have short-circuited which resulted in the ignition of fumes in the air. The climatic factors during the ignition of this fire and the availability of heavy equipment kept this fire contained, which in turn, helped prevent a major conflagration.

In 1984 the Squaw Flat Fire (Figure 6), which originated off the refuge, burned approximately 6,000 acres, of which only 110 acres of Hopper Mountain NWR burned. While the actual cause of this fire was unknown, it was suspected that sparks from a ricochet bullet started the fire.

Figure 6. Fire History.

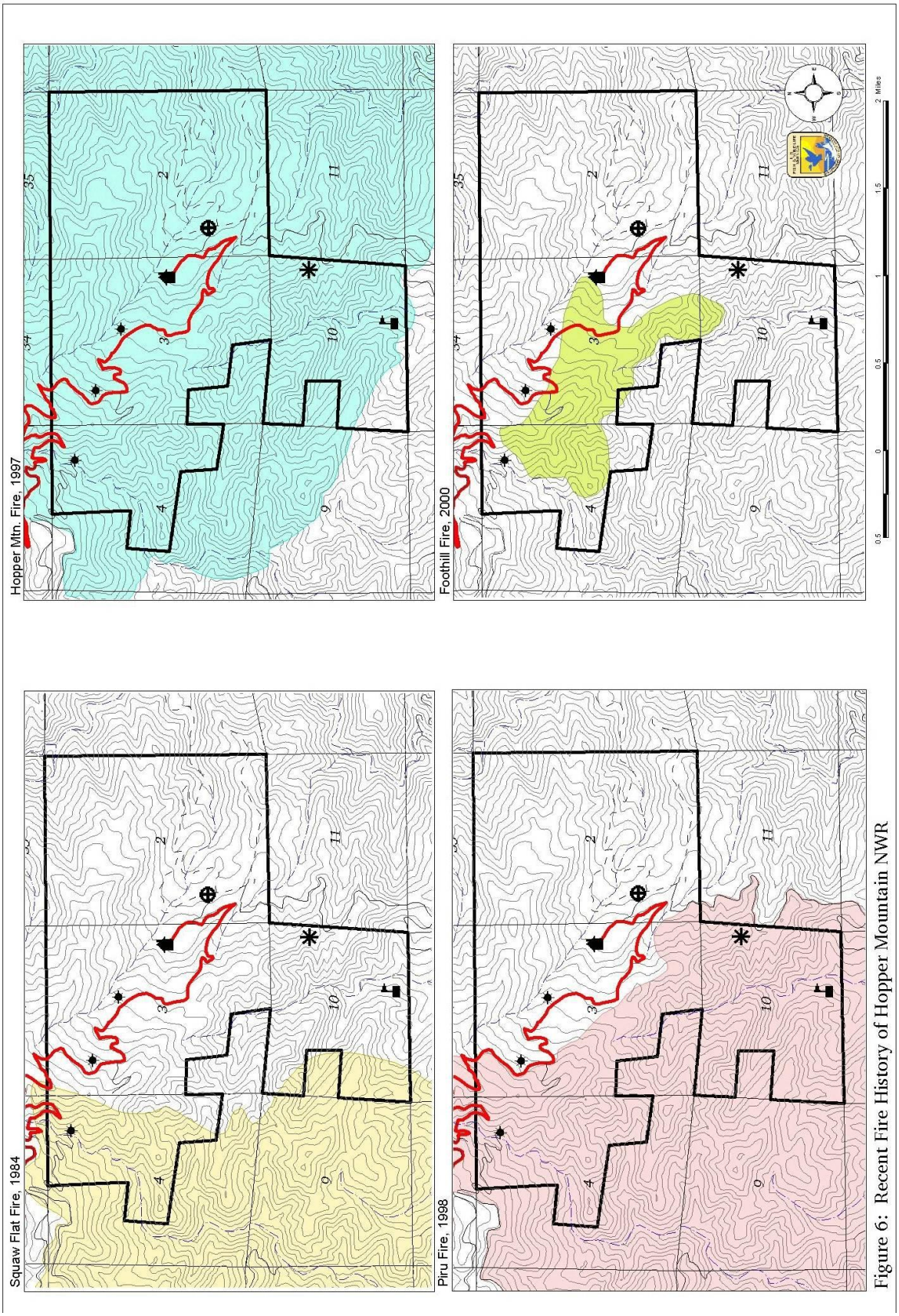


Figure 6: Recent Fire History of Hopper Mountain NWR

A fire in August of 1997 (Figure 6) burned a total of 18,700 acres (2,471 acres of Hopper Mountain NWR), causing $18,133 dollars in damage to Refuge facilities. The fire burned several small buildings and water lines however the main buildings sustained only minor damages. The fire was believed to be human-caused and originated southwest of Hopper Mountain on private land.

Although burned in the previous year, the El Nino rainfall of the preceding winter helped re-vegetate the Refuge in a heavy crop of annual grasses. In August of 1998 (Figure 6) the Piru Fire, which started on private property, burned 12,613 acres (1,257 acres of Hopper Mountain NWR). This fire did not damage any structures or improvements on the Refuge.

The most recent wildland fire, known as the Foothill Incident, occurred in December of 2000 (Figure 6). This fire originated on the Refuge near the ranch house and burned a total of 440 acres. No structures were damaged and the cause is still unknown. This fire and the Piru incident occurred under Santa Ana Wind conditions which contributed to their rapid rate of spread. The Foothill fire would have been much larger though if not for it burning into the lighter fuels from the Piru and Hopper incidents.

To date, there have been two lightning fires documented. One went out naturally (date unknown) and the other occurred in 1977 and was suppressed by refuge personnel using hand tools. Both fires were less than 1 acre. A larger picture of post settlement fire history is seen when analyzing the fire occurrence on the neighboring Ojai Ranger District. Over the 10 year period of 1990 to 2000, the district has had 79 fires, 70 of which were human caused (Appendix U).

Prescribed Fire History

Prescribed burning in southern California chaparral has been conducted year round, but most typically occurs in the late fall, winter, and spring months. This is due to the lower burning intensities and ease of control during this time of year. Recent studies suggest that this may not be the optimum burning conditions if chaparral regeneration is the desired effect (Beyers 2000). The other predominate fuel type in southern California, native & non-native grasses, will only burn when cured. The typical months for burning grasses is June through December, but the risk of escape and increased fire danger limits most in season burning.

While the Refuge itself has not conducted prescribed burning, the neighboring Los Padres National Forest has a well established program on their lands. They have typically burned during the "wet" season. This is due to control factors and availability of personnel as mentioned and not necessarily plant biological needs. More emphasis is being placed though on "in season" burning which would occur during the summer months of June, July, and August. The desired fire effects will be the key to determining appropriate timing of burns on the Refuge when a program is established.

Due to the high incidence of human-caused fire over the last 14 years, no prescribed burning will be conducted until the appropriate fire return interval for the grass ecosystem can be determined. Research is currently being conducted at the Santa Rosa Ecological Reserve in southwestern Riverside County, which will give guidance to both the fire return interval and seasonality of the burn (Wells 2000). In addition to grasses, the other two fuel types found on the Refuge, chaparral and timber/riparian have sufficient research to manage them for prescribed burning. The fire return interval for southern California chaparral is estimated to be 20 to 70 years (Beyers 2000). The timber/riparian ecosystems are tied to the surrounding fuel types and their fire return intervals. High intensity fires or short return intervals can damage the trees in this community. Monitoring of these stands will be important to evaluate the fuel buildup in and around them, and to then recommend a treatment plan.

RESPONSIBILITIES

The Hopper Mountain NWR Complex (Complex) does not have a dedicated fire management organization. The Project Leader is responsible for planning and implementing the fire management program on the Refuge. The Zone Fire Management Officer (FMO) located in San Diego is responsible for fire management program oversight. The Project Leader will assign fire management responsibilities as collateral duties to appropriate staff who possess appropriate training, experience, and incident qualifications. Pre-suppression planning and work is accomplished by Refuge staff in accordance with national and regional fire management direction under guidance from the Zone FMO. Emergency fire management actions will be handled by Refuge staff according to training and incident qualifications. The Zone FMO will be immediately notified of all emergency actions. Additional information and direction are included in the Fire Prevention and Control Plan (Appendix D) and Fire Dispatch Plan (Appendix Q).

Project Leader

- Is responsible for implementation of all fire management activities within the Complex and will ensure compliance with Department and Service policies.
- Selects the appropriate management responses to wildland fire.
- Approves any Pile Burn Plan.

Deputy Project Leader

- Coordinates Complex programs to ensure personnel and equipment are made available and utilized for fire management activities including fire suppression, pre-suppression projects, and fire effects monitoring.
- Ensures that the fire management program has access to refuge and Complex resources when needed.
- Ensures that Refuge Managers and Complex staff consider the fire management program during refuge related planning and project implementation.

Refuge Manager

- Identifies pre-suppression projects and biological objectives to Fire Management Officer (FMO), notifies FMO of project constraints, and ensures that Refuge resources are available to accomplish pre-suppression projects.
- Acts as the primary Refuge Resource Management Specialist during fire management planning and operations.
- Ensures fire-effects monitoring is being implemented; drafts wildland fire Burned Area Emergency Stabilization and Rehabilitation Plans for Deputy Project Leader; and is responsible for posting and enforcing fire restriction regulations.

Biologist

- Coordinates through Refuge Managers and Deputy Project Leader to provide biological input for the fire program with the FMO or Assistant FMO.
- Assists in design and implementation of fire-effects monitoring, with FMO or Assistant FMO.
- Participates, as requested, in pre-suppression projects, fire suppression, and rehabilitation according to level of training.

Zone Fire Management Officer

- Responsible for all fire-related planning and implementation for the Complex.
- Integrates biological refuge objectives into all fire management planning and implementation.
- Solicits program input from the PL, RM, and Biologist.
- Supervises pre-suppression project planning.
- Coordinates fire related training.

- Coordinates with cooperators to ensure adequate resources are available for fire operational needs.
- Determines when ecological and political triggers are reached for wildland fire.
- Is responsible for implementation of this Plan.
- Is responsible for preparation of fire reports following the suppression of wildland fires and for pre-suppression projects requiring such.
- Prepares an annual report detailing fire occurrences and pre-suppression activities undertaken in each calendar year. This report will serve as a post-year's fire management activities review, as well as provide documentation for development of a comprehensive fire history record for the Complex.
- Submits budget requests and monitors FIREBASE funds.
- Maintains records for all personnel involved in suppression and pre-suppression activities, detailing the individual's qualifications and certifications for such activities.
- Updates all fire qualifications for entry into the Fire Management Information System.
- Nominates personnel to receive fire-related training, as appropriate.
- The FMO will respond to incidents on the refuge to assist cooperators in the management of incidents on or threatening the refuge.

Incident Commander

Incident Commanders (of any level) use strategies and tactics as directed by the Project Leader and WFSA where applicable to implement selected objectives on a particular incident. A specific Limited Delegation of Authority (Appendix E) will be provided to each Incident Commander prior to assuming responsibility for an incident. Major duties of the Incident Commander are given in the National Wildfire Coordinating Group (NWCG) Fireline Handbook, including:

- Brief subordinates, direct their actions, and provide work tools.
- Ensure that safety standards identified in the Fire Orders, the Watch Out Situations, and agency policies are followed at all times.
- Personally scout and communicate with others to be knowledgeable of fire conditions, fire weather, tactical progress, safety concerns and hazards, condition of personnel, and needs for additional resources.
- Order resources to implement the management objectives for the fire.
- Inform appropriate dispatch of current situation and expected needs.
- Coordinate mobilization and demobilization with dispatch and the Collateral FMO.
- Perform administrative duties, i.e., approving work hours, completing fire reports for command period, maintaining property accountability, providing or obtaining medical treatment, and evaluating performance of subordinates.
- Assure aviation safety is maintained to the highest standards.

Initial Attack Modules

Initial attack modules will consist of red-carded firefighters with appropriate red-carded supervision. A Type 5 (ICT5) or Crew Boss (CRWB) is the basic requirement of leadership when responding to a fire with an organized suppression module, i.e. engine. Modules will be prepared and equipped with hand and power tools as needed and will be dispatched with a day's supply of food and water, so they can continue work for 24 hours without additional support.

Employees participating in any wildland fire activities on Fish and Wildlife Service or cooperators' lands will meet fitness requirements established in PMS 310-1, except where Service-specific fitness requirements apply.

INTERAGENCY OPERATIONS

The primary emergency fire management interagency contact for Hopper Mountain NWR is the USDA Forest Service, Los Padres National Forest (Appendix F). The Los Padres National Forest provides wildland fire protection to the Refuge under a cooperative fire protection agreement. All dispatching for wildland incidents will be handled by the Los Padres Emergency Command Center unless superseded by initial attack responsibilities with other cooperators, i.e. Ventura County Fire Department. Ventura County Fire Department is also responsible for structural fire protection on the Refuge. This service by Ventura County Fire Department is a state mandated service. A cooperative fire protection agreement is being developed with Ventura County Fire Department (Appendix F) to document this service and to identify wildland responsibilities, reciprocal actions, and to provide for reimbursable payments. Both of these contacts, as well as other cooperating agencies, are listed in the Fire Prevention and Control Plan (Appendix D) and Fire Dispatch Plan (Appendix Q).

FIRE MANAGEMENT STRATEGIES

Although resource impacts of suppression alternatives must always be considered in selecting a fire management strategy, managing fire for resource benefit will not be the primary consideration. Appropriate suppression action will be taken to ensure firefighter safety, public safety, and protection of the resources.

Critical protection areas, such as the Hopper Ranch and associated structures, Native American pictographs, and California condor nest sites will receive priority consideration in fire control planning efforts. In all cases, the primary concerns of fire suppression personnel shall be the safety, and if needed, all individuals not involved in the suppression effort may be evacuated.

Suppression strategies should be applied so that the equipment and tools used to meet the desired objectives are those that inflict the least impacts upon the natural and cultural resources. Minimum impact suppression strategies will be employed to protect all resources. Natural and artificial barriers will be used as much as possible for containment. When necessary, fire line construction will be conducted in such a way as to minimize long-term impacts to resources. Sites impacted by fire suppression activities or by the fire will be rehabilitated as necessary, based on an approved course of action for each incident.

Lightning fires are common within the Santa Ynez Mountain Range and Topatopa Mountains, and it has been documented that lightning-caused fires have burned on the refuge. The natural process would be to allow for these fires to run their course, but many factors preclude this option. Refuge boundaries, public safety, and social and economic considerations make this option impossible to implement without undue risk. Naturally occurring fires will have a propensity to leave the Refuge and burn both private and other federal lands. The town of Fillmore is adjacent to the Refuge and could be at risk. A wildland fire-use program would have to enlist the support and involvement of all neighboring landowners and land managers. Values at risk and escape concerns will have to be mitigated before this program is implemented.

Specific fire management strategies for the Hopper Mountain NWR are:

- All wildland fires will be controlled using the appropriate suppression strategy which considers safety, property, natural resources, and economics.
- Mechanical treatment will be used to reduce hazardous fuels around structures and improvements annually.
- Prescribed fire will be evaluated for future use to restore the historic fire regime and meet the ecological needs of the Refuge.
- Known cultural resource areas will be excluded from all fire management activities including fire line location, retardant drops, and adverse fire effects.

PROTECTION OF SENSITIVE RESOURCES

Mechanized equipment (dozers) and aircraft/retardant use is prohibited due to cultural, wildlife and safety concerns, unless life and/or property are threatened or specifically approved by the Refuge Manager or Designate. This decision is based on the possibility of California condors being housed on the Refuge and/or flying or nesting in the vicinity. Cultural resources of significance are also found on the Refuge and are vulnerable to suppression damage. At the Annual Operating Plan Review, issues of restrictions should be discussed with cooperators. Changes and areas of concern will be documented. During wildland fires, specific limitations and approvals will be addressed in the Delegation of Authority.

When aircraft are used, their flight patterns should be arranged as to avoid the Hopper Canyon and Sespe Sanctuary if condor nesting activities are taking place, when condor chicks are present, and to avoid mid-air collisions with in-flight adults. Aircraft must not drop retardant on the pinnacles rock formation (Figure 1) and in areas where condors may be present. Aircraft should also avoid flying over occupied roost sites. Specific guidance has been issued for the use of aerial retardants (Appendix T). Foam should not be used in streams or other areas where water may pool. A resource advisor must be assigned to the incident command post during the initial attack period in order to assist the incident commander with these and other decisions. The "Fire & Safety Protocols - Emergency Response Plan for the CA Condor Recovery Program at Hopper Mtn. NWR & Sespe Condor Sanctuary" is found in Appendix X. This plan defines the steps for dealing with personnel safety and evacuations when working in the field during condor operations. The "Human/Condor Emergency Rescue Protocol for Hopper Mt. NWR" is found in Appendix Y. This plan provides guidance for the emergency evacuation of personnel or condors in the event of an emergency.

The Regional Archaeologist will work with fire staff, project leaders, and incident commanders to ensure that cultural resources are protected from fire and fire management activities. The "Request For Cultural Resource Compliance" form (RCRC, attached) will be used to inform the Regional Archaeologist of impending activities, thereby meeting the regulations and directions governing the protection of cultural resources as outlined in Departmental Manual Part 519, National Historic Preservation Act (NHPA) of 1966, Code of Federal Regulations (36CFR800), the Archaeological Resources Protection Act of 1979, as amended, and the Archaeological and Historic Preservation Act of 1974. The NHPA Section 106 clearance will be followed for any fire management activity that may affect historic properties (cultural resources eligible to the National Register of Historic Places).

Impacts to archaeological resources by fire resources vary. The four basic sources of damage are (1) fire intensity, (2) duration of heat, (3) heat penetration into soil, and (4) suppression actions. Of the four, the most significant threat is from equipment during line construction for prescribed fires or wildland fire holding actions (Anderson 1983).

The following actions will be taken to protect archaeological and cultural resources:

Wildland Fires

- Minimum impact fire suppression tactics will be used to the fullest extent possible.
- Resource Advisors will inform fire suppression personnel of any areas with cultural resources. The Resource Advisor should contact the Regional Archaeologist for more detailed information.
- Foam use will be limited in areas known to harbor surface artifacts.
- Mechanized equipment should not be used in areas of known cultural significance.
- The location of any sites discovered as the result of fire management activities will be reported to the Regional Archaeologist.
- Rehabilitation plans will address cultural resources impacts and will be submitted to the Regional Archaeologist using the RCRC (Appendix S).

Pre-suppression Projects

- The Refuge Fire staff will submit a completed RCRC to the Regional Archaeologist as soon as the project is identified (i.e., as soon as feasible).
- Upon receipt of the RCRC, the Regional Archaeologist will be responsible for consulting with the FMO and evaluating the potential for adverse impacts to cultural resources.
- When necessary, the Regional Archaeologist will coordinate with the State Historic Preservation Officer (SHPO). The SHPO has 30 days to respond. The Refuge will consider all SHPO recommendations.
- Mechanized equipment should not be used in areas of known cultural significance.
- The location of any sites discovered as the result of fire management activities will be reported to the Regional Archaeologist.

WILDLAND FIRE ACTIVITIES

It has been the Hopper Mountain NWR policy to employ the full suppression alternative on all wildland fires due to the potential for damage to resources, protection of property, and liability. This action meets National Wildland fire Management Guidelines Alternatives as discussed in the Federal Wildland Fire Policy (1995). Both Ventura County Fire Department and the Los Padres National Forest employ a similar full suppression alternative. The Prescribed fire alternative as a management tool is not used at this time on the Refuge. Wildland fire use for resource benefit is not a management alternative used on the Refuge either.

Suppression is provided by the Los Padres National Forest under a cooperative fire protection agreement (Appendix F). Hopper Mountain NWR is also considered a mutual aid threat-zone and will receive assistance from Ventura County Fire Department. The process for activating an emergency response for all wildland fires is found in the Fire Dispatch Plan (Appendix Q) and all other emergencies in the Fire Prevention and Control Plan (Appendix D).

PREPAREDNESS

Preparedness is the work accomplished prior to fire occurrence to ensure that the appropriate response, as directed by the Fire Management Plan, can be carried out. Preparedness activities include: budget planning, equipment acquisition, equipment maintenance, dispatch (Initial attack, extended, and expanded), equipment inventory, personnel qualifications, and training. The preparedness objective is to ensure a well trained and equipped fire management organization to manage all fire situations within the Refuge. Preparedness efforts are to be accomplished in the time frames outside the normal fire season dates.

Annual fire preparedness is the responsibility of the Project Leader. Implementation of the following areas of responsibility will be accomplished as situations dictate, but need to be evaluated annually prior to fire season. The Zone Fire Management Officer is responsible for coordinating and assisting with technical and administrative implementation of this plan.

Review of the Annual Operating Plan with the Los Padres National Forest should be completed annually in the spring. Changes to protection levels, emergency contacts, and procedures will be noted. Areas of concern such as roads, cultural, biological and structural improvements, and any operational changes which may affect fire operations should be reviewed.

Historical Weather Analysis

Hopper Mountain NWR uses the weather measurements from the Temescal (045307) and Casitas (045308) Remote Automated Weather Station (RAWS). Temescal RAWS is located 5 miles east of the refuge. Casitas RAWS is located 30 miles west of the refuge. These stations are maintained by the Los Padres National Forest. Both stations have a historic weather data base of at least 8 years. An average of these two stations weather data is calculated so as to display a more accurate weather picture of the refuge and surrounding fire weather zone. These RAWS and the refuge are located in Fire Danger Rating Area 600. The representative NFDRS fuel type used is B, southern California Brush.

The most accurate way of displaying the relationship of weather and fuels to the fire danger is through the Burning Index or BI. The BI is an estimate of the potential difficulty of containment of a wildland fire as it relates to the flame length at the head of the fire. The BI value is a function of the spread component (how fast the fire could spread) and the energy release component (how hot the fire could burn). The BI is scaled such that a BI value of 40 would indicate a predicted average mid-flame length of 4 feet. Wildland fires where the mid-flame length exceeds 4 feet are judged to be too hazardous for hand crews and engines to attack along the direct edge of the fire. The BI may also communicate the relative fire danger

in a rating area. The 90th percentile BI is 80 and the 97th percentile BI is 120 (Appendix G). The 90th percentile is defined as 90 percent of all BI's are at or below this index for the time period calculated, and the same is true for the 97th percentile. When overlaid with historic fire occurrence, a relationship with fire weather can assist with more accurate preparedness planning.

The fire season at the Hopper Mountain NWR can begin as early as March, and continues until December during drought years. Fire season is dictated by live fuel moisture in the herbaceous fuels and cured state of the annual grasses. Other factors include days since the last measurable rainfall, seasonal fire danger rating calculations and probabilities using Fire Family Plus. An analysis of the historic Burning Index (BI) trend (Appendix G) shows a drop in the BI during the May and June months. This is due to increased inland heating which draws the cooler air mass off shore inland. The result is a fog layer which persists in coastal and inland valley areas during these months. As the pacific high builds this condition dissipates. Declaration of fire season in California is made by the California Department of Forestry and Fire Protection for each county. The Los Padres National Forest acknowledges this declaration but may vary staffing based on their own calculations of the fire danger. Weather features dictating fire season length are predominantly the persistence of the "Pacific High" season ending rainfall and Santa Ana wind events.

The nature of the fuel types found on the Refuge, grassland and chaparral, coupled with the usual weather pattern of no rainfall, high temperatures and low relative humidity makes every fire season a potentially extreme one. Also of concern are the Santa Ana wind events which occur from late September to February. These foehn winds are characterized by low humidity and wind speeds in excess of 50 mph. Both factors are criteria for Red Flag watches and alerts, and are announced by the Southern Operations Emergency Command Center and the Riverside Fire Weather Office.

Fire Prevention

In order to meet the fire prevention needs of the refuge, the larger land base must be analyzed. This is due to the fact that 3 of the last 4 major fires impacting the refuge came from adjacent lands. The Ojai Ranger District of the Los Padres NF borders the refuge to the north. A review of fire history from 1990 to 2000 (Appendix U) reveals the following wildland fire information; wildland fire activity was the greatest during the months of June through September; 80% of all fires were size class A & B (under 10 acres); he predominant causes were miscellaneous, campfires, equipment use, arson and lightning; 80% of all fires occur between the burning indices of 30 and 60. Based on this information, it is clear that the current fire history of the refuge does not reflect the activity that is occurring around them. This is due to the isolation of the refuge from the urban area to the south and the initial attack success of the forest and county at keeping most fires off the mountain. The most recent large fires on the refuge bear this point out.

It can be seen then that a active fire prevention program both on and adjacent to the refuge is beneficial to the protection of this habitat. An active fire prevention program will be conducted in conjunction with other fire agencies to protect human life and property, and prevent damage to cultural resources or physical facilities. Visitor contacts, bulletin board materials, handouts and interpretive programs may be utilized to increase visitor and neighbor awareness of fire hazards. Trained employees need to relate to the public the beneficial effects of prescribed fires as opposed to unwanted human-caused fires, with emphasis on information, essential to understanding the potential severity of human-caused wildland fires and how to prevent them.

Refuge staff, volunteers and contractors shall be made aware of general fire restrictions during the fire season. Restrictions include ensuring all small engines have approved spark arresters, wood stove pipes are clean and installed correctly, having a separate building and area for the storage of combustibles, and not using open flames during high fire danger. It is essential that employees be well informed about fire

prevention and the objectives of the Refuge's fire management program. Further, employees must be kept informed about changes in existing fire danger conditions throughout the fire season. Precautionary measures based on the activity levels are covered in the Fire Prevention and Control Plan, Appendix D. the daily activity level can be obtained from the Los Padres N.F. during the fire season.

During periods of extreme or prolonged fire danger, emergency restrictions regarding refuge operations, or area closures may become necessary. Such restrictions, when imposed, should be consistent with those implemented by cooperators. There are no pre-determined area closures either on the Refuge or adjoining Forest Service lands. The Project Leader has the authority to implement an area closure for the Refuge when fire danger is extreme and public safety is threatened (Appendix H). Levels which should initiate consideration of area closures are: BI's in excess of the 97th percentile, large fires in the immediate area or threatening the Refuge, initial attack resources committed to other fires, increase in arson activity, etc. A decision matrix for area closures can be found in the Fire Management Handbook, Section 3.1. Consultation and coordination with cooperating fire agencies and landowners is critical to implement a successful closure.

Staffing Priority Levels

The Hopper Mountain NWR does not have full time fire personnel, so staffing levels per say are not relevant. Fire Danger calculations and adjectives are necessary on this refuge for communicating the fire danger & growth potential on a given day, and determining the precautions necessary when performing field work. Staffing levels may also be used to augment the Los Padres staffing levels with Fish & Wildlife resources.

The Los Padres National Forest is the agency responsible for collecting and publishing the current and predicted BI and Adjective Rating (AR) for this zone. The Adjective Rating translates the BI into a index relative to the fire danger rating area. The Refuge is within Fire Danger Rating Area 600. The daily forecast, predicted BI, and AR are available after 1600 hours daily by contacting the Los Padres Emergency Command Center. The BI's and Adjectives for the Hopper Mountain NWR will be those used by the Los Padres National Forest. Staffing levels have been developed by the Los Padres National Forest through their National Fire Management Analysis System (NFMAS) and Fire Family Plus calculations and are appropriate for the Hopper Mountain NWR since fuels, topography, weather, and values at risk are comparable. Appendix V displays the 5 staffing levels with associated fire probability. Since there are no fire staff located on the Hopper Mountain NWR, all severity augmentation on the Refuge will be in the form of repositioning personnel and equipment to the Refuge, or in the local vicinity. Coordination with the Los Padres NF will be necessary so as to not duplicate or otherwise commit resources unnecessarily. The Step-up Plan (Appendix H) should be referenced for determining needs and authorization of personnel, equipment, and funding. All severity actions will follow FWS Fire Management Handbook direction in Section 3.1., which gives guidance on when this type of action is warranted and the process for implementation.

Training

Departmental policy requires that all personnel engaged in suppression and prescribed fire duties meet the standards set by the National Wildfire Coordinating Group (NWCG). San Diego NWRC will conform strictly to the requirements of the wildland fire management qualification and certification system outlined in the NWCG publication "Wildland and Prescribed Fire Qualification System", PMS 310-1. The refuges will also follow additional requirements and guidelines in the USFWS Fire Management Handbook when the standard is higher.

The FMO is the Refuge coordinator for all wildland fire training and certification. The FMO will provide classroom and on the job training opportunities to facilitate career development and augment the Refuge, regional, and national firefighting and prescribed fire staffing needs. The Project Leader, Refuge

Manager, and FMO will annually identify training needs for Refuge staff. The FMO will obtain classroom training slots and coordinate attendance. The FMO will coordinate fire training needs with those of other nearby refuges, cooperating agencies, California/Nevada Operations, and the Regional Office. The FMO is responsible for verifying pre-requisites and overseeing compliance in both the classroom and taskbook process. The FMO will initiate taskbooks for Refuge employees as required to document training assignments and aid in employee development. The Project Leader is responsible for signing incident qualification cards.

Only red-carded firefighters will participate in fire suppression and prescribed burning programs. All others should have a basic under standing of wildland fire safety, notification procedures and roles in the event of a wildland fire. An Annual Wildland Fire Safety refresher is a requirement for all red-carded Refuge staff and should be attended by all employees with field duties. The refresher will follow guidelines as stated in the FWS Fire Management Handbook, Section 1.5.1. All Refuge staff fire related training and qualification records will be kept in the FMO's master files with a copy at the Refuge office. All physical fitness testing, annual fire safety refresher training, and equipment & supply inspections will be completed prior to fire season. The Refuge Manager will ensure these items are accomplished annually (Appendix I). The Departments Fire Management Information System (FMIS) will be used by the San Diego NWRC to track fire qualifications, training, and assignments and manage the qualification process.

The Refuge supports the development of individual fire qualifications where there is an interest. Refuge staff will be trained and qualified according to national standards and made available to overhead teams at the local, Regional, and National level when available.

Supplies and Equipment

Preparedness measures for the potential threat of fire on the Refuge involved the creation and maintenance of fire caches (Appendix J) and establishing fire hose boxes around the refuge buildings, mounting fire extinguishers in buildings and vehicles, and maintaining a designated heli-pad near the main housing structures and noting the location of nearby heli-pads (Figure 7). Fire tools will be inspected and maintained by the Refuge Manager annually or after a fire by sanding the handle, filing any blades, and repainting the metal components. The fire cache is located at the Hopper Mountain Refuge. Maintenance of equipment and supplies is the responsibility of the Refuge Manager. The cache is equipped for 10 people and includes a 250-gallon slip-on unit which is stored at the Complex headquarters in Ventura.

Additional equipment and supplies are available through the interagency cache system or GSA. Requests for additional personnel and equipment are made through the Los Padres National Forest Emergency Command Center during incident mobilization. Fire replacement of normal unit strength inventories should be ordered though normal procurement channels with Project Leader approval.

DETECTION

Fires are typically reported by Refuge staff or adjacent landowners/workers. All fires will be reported using the steps outlined in the Fire Dispatch Plan (Appendix Q). Use of the 911 emergency notification system is the most appropriate and most practical when the exact location or responsibility area is not known.

DISPATCHING

Hopper Mountain NWR does not have a dispatch position. Dispatching for wildland fires is provided by the Los Padres N.F. under a cooperative agreement (Appendix F). The method for activating a wildland or other emergency response is outlined in the Fire Dispatch Plan (Appendix Q). Since the refuge does

not have suppression resources, all equipment and personnel dispatched are based on the pre-established levels as shown in Table A. The Step-up Plan section discusses criteria and levels in further detail.

COMMUNICATIONS

The Refuge maintains a radio system which includes portable and mobile radios with repeaters for field operations. Other means of communications available at the ranch house or in the field are land lines and cellular phones. All immediate emergency notifications and activations will use procedures as outlined in the Fire Prevention and Control Plan (Appendix D) or the Fire Dispatch Plan (Appendix Q). During emergency fire operations, mutually agreed upon command and tactical channels will be used. Frequencies that may be used will either be Los Padres National Forest or Ventura County Fire Department frequencies, or a combination (Appendix F).

PRE-ATTACK PLAN

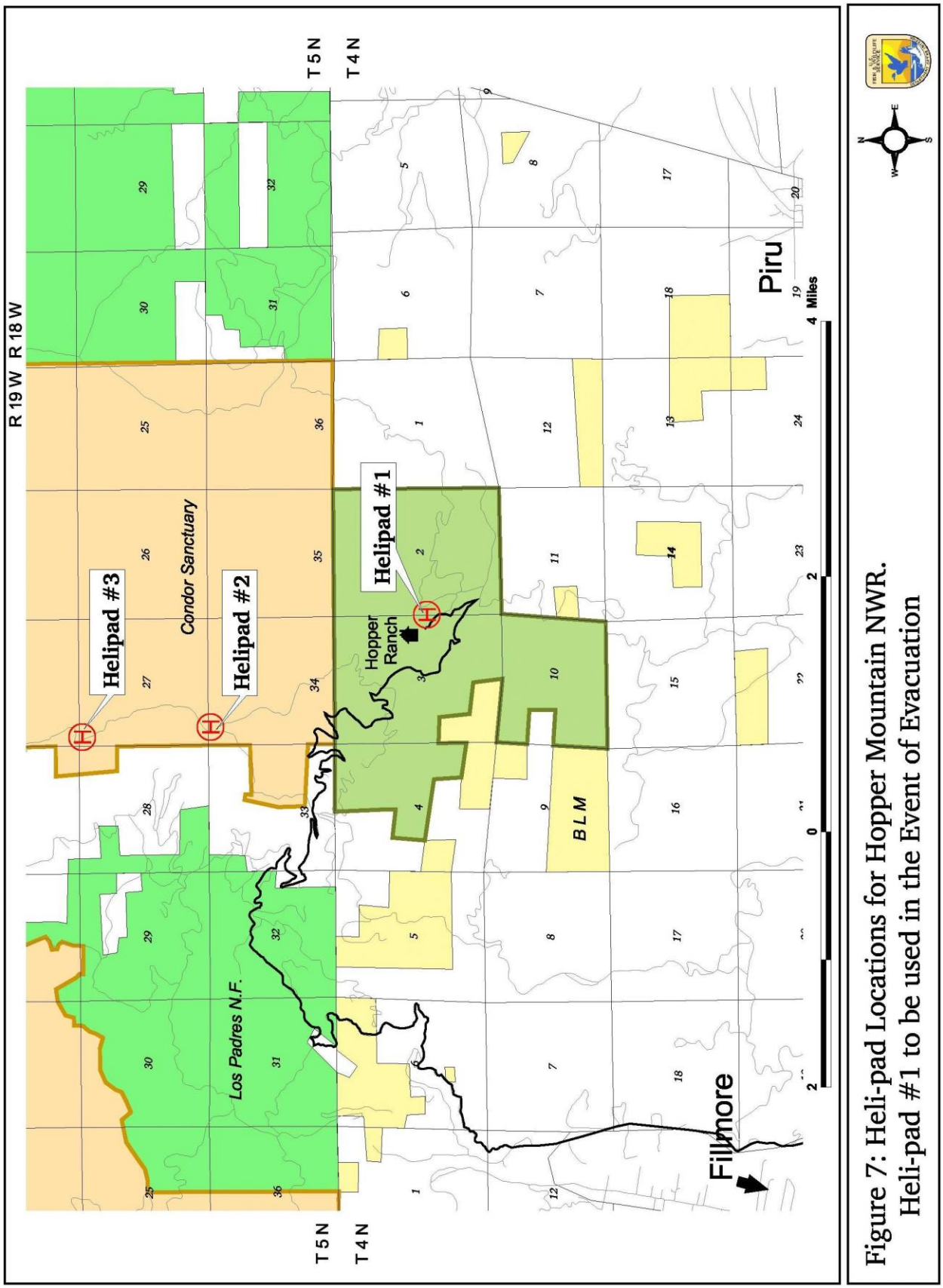
The Hopper NWR uses the Los Padres N.F. to dispatch, size-up, and attack all wildland fire on or threatening the Refuge. Through analysis of seasonal weather trends and fire history, the Los Padres N.F. has developed dispatching levels, which includes suppression resource types and quantities. The Los Padres has divided their protection area into response areas. The response area for the Hopper Mountain NWR is "HMR1" and requires an initial attack dispatch of increasing resource types and quantities as fire danger & potential increases. The Los Padres National Forest has identified 3 levels of response based on the fuel moisture and burning index: low, moderate and high (Table A). The low and moderate levels are seasonal, i.e., winter and summer. High corresponds to significant weather or situational events, i.e. Santa Ana winds. When conditions warrant, "second alarm" is ordered which includes a pre-identified list of additional resources.

There is no pre-attack plan/map for location of fire lines on the Refuge. There are limited options for locating indirect fire lines due to the topographical lay of the land and the size of the Refuge. Figure 2 delineates general fuel type locations, cultural resources, and shows the predominant ridge line transecting the refuge from northwest to southeast. Additionally, Figures 3 and 4 show values at risk, i.e. oil wells, structures and wildlife-caring facilities. Specific fire line location, approval, and up-to-date information on resources and values must be obtained during an incident from a refuge representative. The Hopper Ranch could be used as a staging area for 5 engines or 2 hand crews with the approval of the Refuge Manager. The ranch facilities are not available for servicing fire personnel so all support would need to be provided, i.e. toilets, water, etc. Pre-identified Helipads are shown in Figure 7.

Table A. Dispatching Levels.

Adjective		Engine	Helicopter	Patrol	Air Tanker	Crew	Chief Officer
Low	spring or winter	3	1	2	0	1	1
Moderate	fire season	4	1	2	0	1	2
High	severe weather	5	1	2	1	2	2
Second Alarm		5					1

Figure 7. Helipads.



FIRE MANAGEMENT UNITS

Fire Management Units (FMUs) are areas on a refuge which have common wildland fire management objectives and strategies, are manageable units from a wildland fire standpoint, and can be based on natural or manmade fuel breaks. The Hopper Mountain NWR is relatively small in size, has no natural barrier or distinguishing topographic feature, and fuel type groups are interspersed throughout the refuge. The entire refuge will be considered a Fire Management Unit for the sake of this plan.

Vegetation Type

As documented in the Fire Effects Information System (FEIS), this ecosystem in general is readily adapted to fires of low and moderate intensities. Seasonality and return intervals of fire is the critical issue. The potential for mortality of individual plant species is possible if return intervals are too short, intensities too high, or burning occurs during the spring months. While fire may be beneficial to this ecosystem under certain conditions, its potential for leaving the refuge boundaries and damaging private property far outweigh those benefits in the unplanned state. Careful planning and contingencies must be in-place for any use of fire as a resource tool on the Refuge.

Grasses

Both the annual and perennial grasses found on the Refuge are well adapted to fire, although, at different return intervals and intensities. The annual non-native grasses which comprise 36% of the Refuge are well adapted to fire occurrence of about 15 years and moderate intensities. The perennials favor a frequent, low intensity fire (Parsons 1981, 1989). Fire readily destroys grasses and grass seed on the ground surface, but high seed bank deposits in the soils combined with increases in nutrients after a fire promote germination and growth (Bancroft 1985). If a program was developed to reintroduce native grasses to this Refuge, fire would play a critical role in the removal of the non-natives and reintroduction of native grasses. For the time being, the presence of the grasses provides soil stabilization and small rodent cover.

Chaparral

Historically, chaparral fires in southern California have resulted in the highest numbers of human loss of life and property damage (CDF 2000). Chaparral dominates both the Refuge and surrounding areas and is known for its high rates of spread and intensity. The chaparral community is well adapted to fire, but responds differently to both return intervals and seasonality. It is possible that short return intervals, high intensities, or out of season burning, can be detrimental to this plant community (Keeley 1994). The fire return interval for southern California chaparral is estimated to be 20 to 70 years (Keeley 1989; Minnich 1995). "Stand replacing" episodes are not uncommon in this fuel type, but stump-sprouting and seedling regeneration occurs rapidly and species dominance occurs within a few years. A key identifier of fire danger in this fuel type is live fuel moisture. A critical level is considered to be 65% live fuel moisture in chaparral. This measurement is taken at regular intervals by the Los Padres NF and is available through their Emergency Command Center.

Timber/Riparian

The timber/riparian vegetation community is made up of scrub oak, California black walnut and big-cone Douglas-fir. Crowning and torching of the leaves by direct flame contact and convective heat impact all species. Trunk and limb damage is very possible which may lead to mortality if fire becomes established in either old fire scars or areas damaged by either natural or unnatural means such as insects or cutting. In either case, fire intensities and seasonality must be controlled for the survivability of this vegetation type (FEIS 1996). A beneficial second order fire effect would be the site prep for new seedlings by the burning of adjacent brush stands.

Wildlife
Wildland fire may directly reduce California condor reproductive success if chicks or eggs are lost due to burning, smoke inhalation, or stress. For these reasons, burning near nest sites could have adverse effects on newly hatched California condors. Conversely, fire may enhance the condors habitat by creating snags for future roost sites and improving foraging habitat. Fire exclusion would increase fuel loading, which in turn may cause large, more intense fires seriously affecting the habitat. Heavy equipment and aircraft/retardant use is restricted due to these potential impacts.

Soils
With fire comes the loss of vegetation and may result in the loss of soil stability when roots no longer hold soil in place. Soil integrity changes from fire continue to be a problem in winter with the onslaught of rain, hence hydraulic erosion. Erosion due to heavy rains is a constant occurrence at Hopper Mountain NWR and is of special concern on the slopes surrounding buildings and other structures where fire suppression activity would be conducted. In the event these areas are burned and left bare due to fire, vegetative rehabilitation would be needed to prevent loss of any structural integrity.

Water
There is no direct effect to water source from fire on the Refuge. Indirect effects would be off Refuge and would consist of flooding, silting, and mud flow. These indirect effects would need to be addressed in burn area emergency rehabilitation planning.

Fuel Types
The 3 general fuel type (grasses, chaparral and riparian) can be classified as fuel models 1, 4, and 8 respectively. All three will demonstrate varying degrees of spread rates and intensities during summer months in "normal" fire seasons.

Fuel model 1 represents the grasses found on the Refuge. This model is governed by fine dead fuels (1 hour time lag), has a fuel load of 1-2 tons per acre, and a height of 1-2 feet.

Fuel model 4 represents the chaparral found on the Refuge. This model is governed by fine dead fuels (1 and 10 hour time lag), with good vertical and horizontal arrangement, and volatile oil contents. Typical of older stands is deep litter layers which increase flammability and resistance to control. Fuel loading is 10 to 20 tons per acre and a average height of 5 to 7 feet.

Fuel model 8 represents the riparian habitat found on the Refuge. The riparian fuel type is difficult to model due to different characteristics of the tree species, but predominately fits the model 8 when walnut and Douglas fir are present. The scrub oak fuels can be modeled using model 6. The walnut and Douglas fir produce ground fuel that is relatively compact and close to the surface with occasional jackpots of dead and down limb wood. Needle and leaf cast are the carriers of fire and range in a fuel load of 4 to 6 tons per acre with a depth of up to 1 foot. The scrub oak responds like the brush model. Its fuel loading of 8 to 10 tons per acre, fuel bed height of 6 to 10 feet, and vertical/horizontal arrangement makes it a transitional fuel bed.

Fire Behavior
Grass Fuels
Fires in this fuel type are surface fires and move rapidly through the cured grass. Seasonal changes from live to dead (cured) for the perennial and annual species are very important to potential fire behavior. Grass fuel beds transition through growing seasons from green up in the spring , to curing in late spring, to a cured stage in mid-summer, and then to a winter rain compacting stage. Table B demonstrates predicted fire behavior under typical summer conditions for this fuel model.

Chaparral Fuels
Fires in the chaparral community are governed by fuel moisture, wind speeds, slope, aspect, and age class. Chamise is the indicator species of fire potential in the chaparral community and its fuel moisture is a measure of that potential and severity. As with the grass fuel model, spring green-up produces higher live fuel moisture. The difference is the dead component of chamise can override live fuel moisture during winter months, and combined with weather and topography, produce low to moderate rates of spread and intensities. BI-monthly samples show highs during winter months can reach 150% to 200%, declining to 50% to 60% at the end of summer. The critical level for fuel moisture in chamise is 60% (Green, 1981). Below 60%, rates of spread and intensity can easily exceed ground suppressions resources abilities to control a fire. Table B demonstrates predicted fire behavior under typical summer conditions for this fuel model.

Timber/Riparian Fuels
The walnut and Douglas-fir stands will exhibit low rates of spread and intensities, due to their compactness, sheltering, and higher fuel moisture. These fuels are slow burning and emit high levels of smoke as the sub-surface levels continue to smolder as the flame front passes. The scrub oak responds to the same factors of fire behavior as does the chamise chaparral, *i.e*., fuel moisture, wind, slope, aspect and age class. Rates of spread will be somewhat slower than the chaparral, but intensities can surpass chamise chaparral due to the higher available fuel loading. Spotting is a significant factor in this fuel due to "rat nests" and heavy duff layers. Embers from these fuels are easily transported up to 1 mile in distance with sufficient heat to ignite new fires. Table B demonstrates predicted fire behavior under typical summer conditions for this fuel model.

Table B. Predicted Fire Behavior.

	Low			Moderate			High		
Fuel Model	**Rate of Spread - CH/HR**	**Flame Length - FEET**	**Fireline Intensity- BTU/FT**	**Rate of Spread - CH/HR**	**Flame Length - FEET**	**Fireline Intensity- BTU/FT**	**Rate of Spread - CH/HR**	**Flame Length - FEET**	**Fireline Intensity- BTU/FT**
NFFL 1 Grass	4	1	7	94	4.5	156	270	7.5	449
NFFL 4 Brush	7	7	375	119	26	6865	309	40.5	17740
NFFL 8 Timber	0	0.5	1	3	1.4	11	7	2.1	29

* wind speed is the variable for these calculations for the purpose of comparison at 0, 5, & 10 mph.

SUPPRESSION TACTICS
Suppression involves a wide range of possible tactics from the initial attack to final control. To this end, all wildland fires will be suppressed in a safe, aggressive, and cost-effective manner to produce efficient action with minimal resource damage and limit smoke impacts to local communities.

As displayed in Table A, typical initial attacks will include a mix of ground engines, crews, and aircraft resources. Adjustments to these dispatch levels may be made at the discretion of the duty officer based on local conditions or initial reports. All fires will be assessed by the first on-scene incident commander and attacked using minimum impact fire suppression guidelines for the Refuge (Appendix K). Roads and natural barriers will be used as much as possible to reduce fireline construction. Fireline and mop-up through riparian areas should consider long-term damage to vegetation. Unnecessary cutting and bucking

should be replaced with alternative actions whenever possible. Back-fires and burnout operations should consider head fire intensities and attempt to avoid frying the soil or running fire into riparian areas. Where wildland fires cross roads, the burned area adjacent to the road should be mopped up and dangerous snags felled.

In addition to the consultation with the Project Leader or their representative, a resource advisor should be assigned to the incident from the beginning to both document rehab needs, but to also assist with on-the-ground tactical decisions.

The fire suppression agreement with the Los Padres NF will serve as a delegation of authority to the initial attack Incident Commander to employ tactics they deem appropriate. As a fire enters extended attack, a new delegation of authority may be necessary. The Project Leader and Fire Management Officer should evaluate this need based on prognosis, strategies & tactics, and complexity.

Suppression Conditions

A full suppression alternative was selected for this refuge which requires aggressive containment and control of all wildland fires. Certain guidelines have been developed to assist with this strategy to protect the refuge from unnecessary damage (Appendix K). Heavy equipment and aircraft/retardant use is restricted due to cultural, wildlife, and safety concerns. Unless life or property is in eminent risk, consultation with the Refuge manager or their representative prior to their use is necessary. This decision is based on the fact that California condors are often housed on the Refuge, are beginning to nest adjacent to the Refuge, flying over and around the Refuge, and feeding on the Refuge; and on the cultural significance found in the area of the Pinnacles Rock. At the Annual Operating Plan Review, issues of restrictions should be discussed with cooperators. Changes and areas of concerns should be documented.

When aircraft are used, their flight patterns should be arranged as to avoid the Hopper Canyon and Sespe Sanctuary when nest sites and/or condor chicks are present and to avoid mid-air accidents with in-flight adults. Guidance on retardant and foam use is provided in Appendix T. No retardant shall be dropped in areas where there may be California condors nor on the Pinnacles cultural site. Foam may be used but restricted to areas with no standing or running water or the potential for such. Chainsaws are allowed at all times without approval, except near condor nesting sites in Hopper Canyon, condor roosting sites in Condor Canyon north of Condor Ridge and Refuge compound, or near the chick rearing facility (Figure 4). Dozers require Project Leader, Refuge Manager, or their designate approval, except when life and/or property are threatened. Dozers should stay on ridge lines and limit widths to one blade wide. Attempts should be made to stay on old dozer lines. Snags (dead trees) must not be cut down, pushed over, or otherwise destroyed. These snags are used by the condors as roost sites. Two significant snag sites are in Condor Canyon north of Condor Ridge and on the Refuge compound. See the "Protection of Sensitive Resources" section for further guidance.

Wildland Fire Situation Analysis

For fires that cannot be contained in one burning period, a WFSA must be prepared. In the case of a wildland fire, the Project Leader or acting, in conjunction with the FMO, will prepare the WFSA. Approval of the WFSA resides with the Refuge Project Leader, and is required to be reviewed every operational period or when there are significant changes affecting the current objectives.

The purpose of the WFSA is to allow for a consideration of alternatives by which a fire may be controlled. Damages from the fire, suppression costs, safety, and the probable character of suppression actions are all important considerations. A WFSA with generic information will be reviewed and updated annually (Appendix L) to facilitate in the preparation during an incident. Important components to pre-identify are Objectives and Strategies. Objectives for the Hopper Mountain NWR include:

- Keep fire north of town of Fillmore.
- Protect oil well sites from fire damage.
- Keep fire east of Forest Service boundary.
- Keep fire west of Piru Creek.
- Protect all structures in the Hopper Ranch compound.
- Protect cultural resource sites from suppression damage.
- Protect condor habitat, i.e. nest sites and roosting snags.
- Keep fire out of Hopper Canyon nesting area.
- Keep fire from entering private lands.

Strategies may include:

- Direct attack employing hand crews and dozers (when authorized) supported by hoselays, helicopters, and retardant.
- Combination of direct and indirect attack. Direct attack using hand crews, tying into ridge lines and roads to contain fire.

Aircraft Operations

Aircraft may be used in all phases of fire management operations. All aircraft must be Office of Aircraft Services (OAS) or Forest Service approved. An OAS Aviation Policy Department Manual will be provided by OAS.

There are restrictions on the operation and use of both fixed and rotor winged aircraft. As identified in Suppression Tactics, Suppression Conditions, and Suppression Guidelines (Appendix K), approval for use of these resources must be obtained from the Project Leader, "unless life or property is in imminent risk." Helicopters may be used for reconnaissance, bucket drops, and transportation of personnel and equipment. Helipads and parking lots are available in most cases (Figure 7). Clearing for new helispots must be approved by the Project Leader and supervised by a resource advisor. Improved helispots will be rehabilitated following the fire.

The importance of coordinating air operations with Refuge staff is critical to avoid encounters with condors. Information on the possible presence of birds, flight hazards, and other operations in the fire area which may impact air operations safety are points to consider. See "Protection of Sensitive Resources" section for further guidance.

BURNED AREA EMERGENCY STABILIZATION AND REHABILITATION

There are three methods of repairing damage caused by wildland fires and wildland fire suppression activities – emergency stabilization, rehabilitation, and fire suppression activity damage repair.

Departmental policy for emergency stabilization and rehabilitation (ESR) on Service lands following wildland fire, including objectives, implementation, plan submittal, monitoring, and funding, is found in the Department Manual (620 DM 3). Service ESR supplemental policy can be found in the Service Manual (095 FW 3.9), with policy implementation guidance provided in Chapter 5 of the FWS Fire Management Handbook. More detailed guidance for can be found in the Interagency Burned Area Emergency Stabilization and Rehabilitation Handbook (2002) and Technical Reference (2002). The Service maintains an internet web site (http://fire.fws.gov/ifcc/rehab/) that provides access to these and several other guidance documents.

Any treatment or activity will have an approved plan developed prior to implementation. Monitoring specifications will be included in the plan for each treatment or activity. Emergency stabilization and rehabilitation treatments and activities will be written in separate plans. The Project Leader, Biologist,

and FMO will review all plans. The final plans will be submitted to the Region for review prior to submission to the Washington Office.

Implementation activities will be conducted in a manner that is compatible with long-term goals and approved land management plans (e.g., Comprehensive Conservation Plan, Habitat Management Plan, Fire Management Plan), in compliance with applicable law and policy, including the National Environmental Policy Act, Endangered Species Act, Clean Water Act, and National Historic Preservation Act.

REQUIRED REPORTING

The Incident Commander will be responsible for documenting decisions and completing the fire report (e.g., ICS-214, DI-1202). The FMO will be responsible for any additional required reports.

FIRE INVESTIGATION

All wildland fires, either lightening or human caused, will be investigated to determine the exact point of origin. A cause and origin investigator will be requested to respond to all fires to initiate an investigation. The cooperative agreement with the Los Padres NF provides for the use of a Forest Service investigator. It is a prerogative of the Project Leader and Fire Management Officer to order a Fish & Wildlife Service investigator to lead or assist with wildland fire investigations. Human-caused fires will require an investigation and formal report by a sworn law enforcement officer. For fires which cause private property damage, serious injury, an investigation team may be required. When any of these issues are realized, the Project Leader will request a Fish & Wildlife Service lead law enforcement officer to initiate the appropriate level of response and investigation. It is the responsibility of all Service personnel to assist with protection of origin sites and evidence. Personnel will attempt to locate and protect the probable point of origin and record pertinent information required to determine fire cause. They will be alert for possible evidence, protect the scene and report findings to the incident commander and investigator.

All fire investigations should follow the guidelines outlined in 4.1-2 of the Service Fire Management Handbook. The Ventura County Fire Department will take the lead in all fire investigations on the Refuge. Fires, which start off the Refuge and burn on to it, will be investigated by the agency responsible for fire protection at the point of origin. A Fish and Wildlife Service Fire Investigator may be requested to assist with the investigation. If the fire originated on the Refuge, the fire investigator will report directly to the Project Leader or their designate. All case reports, citations, and other pertinent documentation must meet with Service guidelines. The Service reserves the right to issue bills for collection for suppression costs and damage.

HAZARD FUEL REDUCTION

Hazard fuel is that vegetation which presents a risk of ignition and sustaining spread of a wildland fire in relationship to a threat to some value. Hazard fuel reduction is both a fire prevention activity and a wildland fire protection measure. On the Hopper Mountain NWR, the hazard fuel situation is associated with annual vegetation growth around structures and facilities at the Hopper Mountain Ranch Compound and Chick Rearing Facility. Ventura County as well as the State of California requires a level of hazard fuel reduction around structures. The objectives of this activity are:

- Reduce the hazard risk to service structures and facilities from an approaching wildland fire.
- Reduce the risk of fire spreading to the wildland from a fire originating in a Service owned structure or facility.
- Provide defensible space and safety to personnel at those facilities during a wildland fire.
- Meet federal, state and local fire hazard reduction ordinances.

HAZARD FUEL REDUCTION STRATEGIES

Strategies include mechanical treatment of the hazard fuels and the debris disposal. Mechanical treatment is accomplished by hand cutting and mowing. Ventura County Fire Hazard Reduction Ordinance requires a 100 foot mowing around buildings to a maximum of 4 inches in height of all vegetation. Structures containing flammable liquids (propane, gasoline, or oil) require the vegetation be removed to bare soil at a radius of 50 feet. Chaparral and limbs from trees growing close to structures are cut back in accordance with Ventura County Fire guidelines also.

Debris must be disposed of to complete the mitigation of the hazard. Debris disposal may be accomplish by scattering, chipping or pile burning. The quantity of vegetation, diameter size, crew availability, and logistical support will dictate the method used. If scattering of cut vegetation is used, an evaluation of the overall fuel loading needs to be considered so as to not add to the hazard fuel problem.

PILE BURNING GUIDELINES

When planning to dispose of debris by pile burning, specific guidelines must be followed in order to provide for safety and reduce the escape potential. General guidelines for pile burning are the same as for prescribed burning. Service guidelines are found in the FWS Fire Management Handbook, Section 2. This section of the Hopper Mountain NWR Fire Management Plan is for the purpose of outlining the steps to take when conducting pile burning only. No prescribed burning of standing vegetation will be conducted. References to a burn plan and burn boss are only for the purpose of pile burning.

Pile burning will be used to dispose of cut vegetation resulting from refuge activities such as annual hazard reduction around structures. Limbs and branches of overhanging trees and brush will annually need to be trimmed back. At times trees may have been blown down during storms which will require debris removal. The most economical and expedient method is through burning of the piled vegetation on site. Pile burning is typically rated as complexity level 3 due to the low risk of escape, limited control forces, and time of year conducted. Safety concerns are still present even at the low complexity level. Careful consideration must be given to smoke management, escape potential and resource benefit when planning and rating the pile burn. The complexity of each pile burn would be evaluated using the NWCG Prescribed Fire Complexity Rating System Guide.

Pile Burn Plan

The Burn Boss will conduct a field reconnaissance of the proposed pile burn location with the Refuge Manager to discuss objectives, special concerns, and gather all necessary information to write the burn plan. After completing the reconnaissance, the Burn Boss will write the Pile Burn Plan.

All pile burning will have a Pile Burn Plan. The Pile Burn Plan is a site specific action plan describing the purpose, objectives, prescription, and operational procedures needed to prepare and safely conduct the burn. The project area, objectives, and constraints will be clearly outlined. No piles will be ignited unless all prescriptions of the plan are met. Fires not within those parameters will be suppressed. Pile Burn Plans will follow the format found in the FWS Fire Management Handbook, Section 2.2. Pile burning is considered a complexity level 3 burn and should use the plan format contained in Appendix M. Each burn plan will be reviewed by the Project Leader, Refuge Manager, Refuge Biologist, FMO/AFMO, and Burn Boss. The Project Leader has the authority to approve the burn plan.

Pile Burning Strategies and Personnel

Pile burning will only be executed by qualified personnel. Pile burning requires a Type III Burn Boss. The Burn Boss will fill all required positions to conduct the burn with qualified personnel. All personnel listed in the burn plan must be available for the duration of the pile burn or it will not be initiated.

Weather and fuel moisture conditions must be monitored closely in the project area to determine when the prescription criteria are met. A belt weather kit may also be utilized to augment monitoring. Fuel moisture samples of 10-, 100-, and 1000-hour down and dead logs (where applicable) and of live plants may be monitored each week and fuel moisture content will be calculated to help determine when the prescription criteria are met.

The Pile Burn Plan requires the following items to be completed prior to ignition:

- contingency plan
- complexity analysis
- review and approval signatures
- go/no go checklist
- spot weather forecast

When pertinent prescription criteria are within the acceptable range, the Burn Boss will select an ignition date based on current and predicted weather forecasts. A thorough briefing will be given by the Burn Boss on the day of the burn and specific assignments and placement of personnel will be discussed. An updated spot weather forecast will be obtained on the day of ignition and all prescription elements will be re-checked to determine if all elements are still within the approved ranges. If all prescription elements are met, a test fire will be ignited to determine on-site fire behavior conditions as affected by current weather. If conditions are not satisfactory, the test fire will be suppressed and the burn will be rescheduled. If conditions are satisfactory, the burn will continue as planned.

For pile burning (complexity level 3 burns), a qualified Incident Commander Type III will be available within a one hour response in the event of an escape. If the burn pile escapes the predetermined burn area, all further ignition will be halted except as needed for suppression efforts. Suppression efforts will be initiated, as discussed in the pre-burn briefing. The FMO will be notified immediately of any control actions on a prescribed burn. If the burn exceeds the initial suppression efforts, the burn will be declared a wildland fire and suppressed using guidelines established in the burn plan. A WFSA will be completed and additional personnel and resources ordered as determined by the Incident Commander. If the fire continues to burn out of control, additional resources based on the contingency plan will be called from the local cooperating agencies via the servicing dispatch. A management overhead team may be requested to assume command of the fire if necessary. Each Pile Burn Plan will detail the contingency plan with identified resources for suppression. This plan will serve as the incident action plan during the initial attack phase of an escape.

Monitoring and Evaluation

During pile burns, monitoring can serve as a precursor to invoking suppression action by determining if the burn is in prescription, assessing its overall potential, and determining the effects of the pile burn. Pile burning does not usually require extensive monitoring. Weather, fire behavior, and smoke management are elements that require monitoring. The Burn Boss will assume responsibility for coordinating and implementing this section. Personnel may be assigned specific tasks such as weather monitoring to document these elements and keep the Burn Boss informed of conditions. Special situations or projects may dictate more extensive monitoring and evaluation.

Required Reports

All forms will be completed as outlined by the Pile Burn Plan. Accomplishments, costs, fire report (DI-1202), weather data, and first order fire effects monitoring are the responsibility of the Burn Boss. The Burn Boss may prepare a final report on the project for the Refuge Manager as requested. Information should include a narrative of the burn operation, a determination of whether objectives were met, weather and fire behavior data, number of work hours, and final cost of the burn (Appendix R).

STRUCTURE AND FACILITY PROTECTION

Structures and facilities located on the Hopper Mountain NWR include those at the Hopper Ranch Compound and Chick Rearing Facility (Figure 4), and privately owned oil wells, pumping equipment, and storage facilities (Figure 3). Pre-suppression protection measures for the Hopper Mountain NWR structures and facilities include annual hazard fuel reduction as previously discussed. The privately owned oil well facilities also must meet similar hazard fuel reduction measures enforced by the Ventura County Fire Department (VCFD). The FWS has not been delegated hazard fuel reduction enforcement responsibilities by the County.

Structure protection for both the Hopper Mountain NWR and the privately owned oil facilities is provided by the VCFD under state law and under a cooperative fire protection agreement (Appendix F). In the event of a wildland fire which threatens structures and/or facilities on or adjacent to the Hopper Mountain NWR, VCFD will coordinate with the incident commander to provide a adequate level of protection to those values. The level of protection will be dependant upon location of fire, fire behavior, and direction of spread. At the annual operating plan meeting with the Los Padres National Forest and VCFD, structure protection protocol and measures will be discussed and detailed in the operating plan. Specifics include:

- Refuge point of contact on wildland and structure fires.
- Updated structure and facility maps.
- Specific areas of concern.
- Protection coordination and responsibilities.

AIR QUALITY / SMOKE MANAGEMENT GUIDELINES

The California Air Resources Board is the regulatory agency responsible for air quality in the state. California Air Basins are divided into air districts. The Hopper Mountain NWR is within the Ventura County Air Pollution Control District (APCD). All air quality issues and regulatory information is administered through this office (Appendix Q).

The APCD must be consulted on all pile burning on the Refuge and requires a permit prior to any ignition. A 72-hour notice is required by the APCD for all burning which may produce significant smoke. "Significant" is considered to be any project which is greater than 10 acres or produces more than 1 ton of particulate matter. The quantity of vegetation to be piled burned on the refuge will typically not meet either of these criteria. The Zone FMO has the authority to write burn permits for Refuge projects. The Prescribed Fire Implementation Reporting System (PIFRS) report should be filed with the Los Padres ECC prior to the burn to assist with Federal prescribed burning database information collection (Appendix N). Notification of the Ventura County Fire Department and the Los Padres ECC on the day of the burn is necessary to prevent false alarm responses.

Currently the Agricultural Burning Guidelines for the State of California are being amended. Changes may occur in the coming years which may affect the quantity, method, and cost of prescribed burning. Initial guidelines require a 72 hour notice of intent to burn. Draft provisions of the plan will identify 3 tiers of burning:

Tier 1 - burn projects greater that 10 acres or estimated to produce 1 ton of particulate matter.
Tier 2 - burn projects greater than 100 acres or estimated to produce 10 tons of particulate matter.
Tier 3 - burn projects greater than 250 acres or near smoke sensitive areas.

Each tier will require varying degrees of reporting, notification, and monitoring. Administrative cost based on tonnage or acreage is also planned. The new amendments are scheduled to be implemented by April 1, 2003. As these changes become effective, amendments to this plan and individual burn plans may be necessary.

FIRE RESEARCH

Graduate student Victoria Tenbrink, from California Polytechnic State University at Pomona, conducted post-fire research on the Hopper Mountain Refuge for her master's thesis entitled "Early Fate of *Juglans californica* var. *californica* (Juglandaceae), The Southern California Black Walnut, Following Wildfire." The project began in October 1997 and was completed September 1998. Tenbrink conducted her studies at 3 different locations in southern California, one of which included 3 transects of California black walnut trees at Hopper Mountain NWR. Appendix W provides a brief synopsis of the findings of the findings. The complete study is on file in the Refuge Office.

Currently there are no fire research projects associated with the Hopper Mountain NWR being conducted nor are any planned. The potential does exist for projects to be submitted through various funding sources which could key in on native grasses or the effects of fire on the California condor. As the fire program at the Hopper Mountain NWR develops, other areas of research will emerge.

Funding is available through the Joint Fire Sciences Research Program for fire research which would benefit the ecological role of wildland fire. The Refuge supports this program and encourages research along these lines.

PUBLIC SAFETY

Hopper Mountain NWR is dedicated to ensuring the safety of each visitor and local residents. The Refuge is currently closed to all general public access. Illegal public entry occurs, but is not a significant problem. The only public on the Refuge or near its borders are oil well workers and visitors with permits or permission from Refuge staff. Oil well workers are well aware of wildland fire safety and maintain both safety precautions and communications. The Refuge office maintains a phone list of oil company contacts and includes the oil company phone numbers.

Annual public safety planning activities will include updating of the Fire Dispatch Plan with phone numbers and changes that could affect public and employee safety in the event of a wildland fire (Appendix Q). During fire season, visitors to the Refuge will be briefed on fire safety and emergency procedures. Briefings will include use of any open flame or other ignition sources, the Fire Dispatch Plan procedures, and escape routes. All persons entering the Refuge during fire season will have access to some form of communication system in the event of an emergency.

There are no pre-determined area closures either on the Refuge or adjoining Forest Service lands. The Project Leader has the authority to implement an area closure for the Refuge when fire danger is extreme and public safety is threatened (Appendix H). Levels which should initiate consideration of area closures are: BI's in excess of the 97th percentile, large fires in the immediate area or threatening the Refuge, initial attack resources committed to other fires, increase in arson activity, etc. The Fire Management Handbook, Section 3.1 provides a decision matrix for determining Refuge closures. Consultation and coordination with cooperating fire agencies and landowners is critical to implement a successful closure.

In the event of wildland fire activity in the area, fire information and maps may be displayed at visitor information sites and at the Refuge headquarters. Attempts to notify local landowners and residents adjacent to the Refuge may be made during wildland fires and when any prescribed burns are planned. If a fire information officer is available during an incident, the Refuge will coordinate all press releases which could affect public safety. A fire information officer will also be used to assist with other public safety issues which the refuge staff identifies.

PUBLIC INFORMATION AND EDUCATION

Routine public information on fire safety and prevention will be handled by the Refuge office in Ventura. Since public access to the Refuge is restricted, a public information plan is not necessary. During the fire season, visits to the Refuge by the public and/or others should be accompanied with a fire safety briefing by a Refuge staff person. Specifics as outlined in the Public Safety section of this plan include those pertinent points. Fire information and brochures will be available to the public upon request at the Ventura Office. Specific and unusual requests/events should be directed to the Zone FMO. Educational material or presentations are available upon request from the Zone FMO.

During wildland fire emergencies requiring a Type I or II incident management team, a fire information plan will be prepared by the team and reviewed by the Refuge Manager. The process for press releases will be determined during team transitions. For fires of lesser size, the refuge office will coordinate with assisting fire agencies on a press release. Coordination through External Affairs, California/Nevada Operations Office is required on all press releases.

As outlined in the Public Safety section, emergency closures or restrictions may become necessary during periods of extreme or extended fire danger. If a closure is planned, appropriate media and local public notifications will be made by refuge staff.

FIRE CRITIQUES, REVIEWS, AND ANNUAL PLAN REVIEW

FIRE CRITIQUES

Fire critiques are an informal process to improve performance and prevent injury. Informal critiques should be conducted after all incidents where a FWS fire crew responds. Informal critiques should include the crew supervisor, fire crew members, and upper level management as the situation dictates. Cooperators can participate. The informal critique will discuss strategy & tactics, safety, interagency cooperation, and other issues that are identified in the discussion. There is no official form for these critiques, so plain paper with a heading of the incident name, date, complexity, names, and assignments will suffice. These critiques should be routed to the Refuge Supervisor and Zone FMO. If there is a minor injury on the incident, formal documentation is required and the Zone FMO and Refuge Manager will determine if a more extensive review of the incident is necessary based on FWS policy.

FIRE REVIEWS

Fire reviews are a formal process for improving safety and efficiency. The Fire Management Handbook, section 3.6.1 describes the objectives, types, and responsibilities of formal reviews. Formal reviews may be requested by the Refuge Manager, Zone FMO, Project Leader, regional or national offices.

ANNUAL FIRE SUMMARY REPORT

The FMO will be responsible for completing an annual fire summary report. The report will contain the number of fires by type, acres burned by fuel type, cost summary (prescribed burns and wildland fires), personnel utilized, and fire effects. This report will be provided to the Project Leader, Refuge Manager, and Regional Fire Coordinator.

ANNUAL FIRE MANAGEMENT PLAN REVIEW

The Fire Management Plan will be reviewed annually. Necessary updates or changes will be accomplished prior to the next fire season. Any additions, deletions, or changes will be reviewed by the Project Leader and Refuge Manager to determine if such alterations warrant a re-approval of the plan.

CONSULTATION AND COORDINATION

The following agencies, organizations and/or individuals were consulted in preparing this plan.

Greg Austin, Deputy Project Leader, Hopper Mountain NWR Complex, USFWS, Ventura, CA.

Roddy Baumann, Prescribed Fire Specialist, Pacific Region, USFWS, Portland, OR.

Melissa Ennis, Refuge Operations Specialist, Hopper Mountain NWR Complex, USFWS, Ventura, CA.

Richard Hadley, Assistant Refuge Supervisor, California/Nevada Operations Office, USFWS, Sacramento, CA.

Steve Kirkland, Fish and Wildlife Biologist, Ventura Fish and Wildlife Office, USFWS, Ventura, CA.

Dennis Macomber, Fire Management Consultant, Portland, OR.

Amanda McAdams, Fire Planner, Pacific Region, USFWS, Portland, OR.

Kirk Waln, Conservation Planner - GIS, Ventura Fish and Wildlife Office, USFWS, Ventura, CA.

Robert Roper, Fire Chief, Ventura Fire County Department, Ventura, CA.

Lonnie Briggs, Assistant Forest Fire Management Officer, Los Padres National Forest, USFS, CA.

APPENDICES

APPENDIX A: REFERENCES CITED

ANDERSON, H.E. 1982. Aids to Determining Fuel Models for Estimating Fire Behavior. USDA Forest Service. 22 p. Ogden, Utah

BANCROFT, L.T., NICHOLS, D. PARSON, D. GRABER, B. EVISON, AND J. VAN WAGTENDONK. 1985. Evolution of the Natural Fire Management Program at Sequoia and Kings Canyon National Park. General Technical Report INT-182. USDA Forest Service.

BEYERS, J.L. AND WAKEMAN, CARLA D. Season of Burn Effects in Southern California Chaparral. 2000. USGS Report 00-622000. Washington, D.C.

CDF. 2000. California Department of Forestry and Fire Protection. California Fire Plan. Sacramento, CA.

DODGE, J.M. 1975. Vegetation Changes Associated with Land Use and Fire History in San Diego County. Thesis Dissertation. University of California.

GREEN, L.R. 1981. Burning by Prescription in Chaparral. General Technical Report. USDA Forest Service. Pacific Southwest Experimental Station. Berkley, CA.

KEELEY, J.E. 1982. Distribution of Lightning and Man Caused Wildfires in California. General Technical Report. Pacific Southwest Experimental Station. Berkley, CA.

KEELEY, J.E. 1994. Resilience to Fire Does Not Imply Adaptation. Fire Ecology Conference. Tall Timbers Research Station. Tallahassee, FL.

KEELEY, J.E.1989. Fire and Demography. Pp. 151-153. Natural History Museum of Los Angeles County, Science Series No. 34, Los Angeles, CA.

LEWIS, C.E. 1973. Understory Vegetation, Wildlife and Recreation in Sand Pine Forests. General Technical Report. USDA Forest Service. Washington, D.C.

MINNICH, R.A. 1995. Fuel Driven Fire Regimes of the California Chaparral. Pp. 21-27. International Association of Wildland Fire, Fairfield WA.

MOONEY, H.A. 1977. General Technical Report WO-3 Fire's Effects on Physical and Chemical Properties of Chaparral Soils. USDA Forest Service. Washington, D.C.

PARSONS D.J. 1981. The Historical Role of Fire in the Foothill Communities of Sequoia National Park. Madrono 28:112-120.

PARSONS D.J.AND T.J. STOHLGREN. 1989. Effects of Varying fire Regimes on Annual Grasslands in the Southern Sierra Nevada off California. Madrono 36:154-168.

ROTHERMEL, R 1983. General Technical Report INT 143 - How to Predict the Spread and Intensity of Forest and Range Fires. USDA Forest Service. Intermountain Forest and Range Experiment Station. Ogden, Utah.

TENBRINK, V.L. 1998. Early Fate of Juglans californica var. californica (Juglandaceae), The Souther California Black Walnut, Following Wildfire. Thesis Dissertation. California State Polytechnic University.

WELLS, R. 2000. Effective Fire Planning for California Native Grasslands. USGS Report 00-62. Washington, D.C.

_____ 1996. Fire Effects Information System. www.fs.fed.us/database/feis

_____ 2000. Fire Management Handbook - US Fish & Wildlife Service. Washington D.C.

_____ 2000. Wildland and Prescribed Fire Qualifications System Guide - National Wildfire Coordinating Group. Washington, D.C.

_____ 1999. Fireline Handbook - NWCG Handbook, National Wildfire Coordinating Group. Washington, D.C.

APPENDIX B: DEFINITIONS

Agency Administrator. The appropriate level manager having organizational responsibility for management of an administrative unit. May include Director, State Director, District Manager or Field Manager (BLM); Director, Regional Director, Complex Manager or Project Leader (FWS); Director, Regional Director, Park Superintendent, or Unit Manager (NPS), or Director, Office of Trust Responsibility, Area Director, or Superintendent (BIA).

Appropriate Management Action. Specific actions taken to implement a management strategy.

Appropriate Management Response. Specific actions taken in response to a wildland fire to implement protection and fire use objectives.

Appropriate Management Strategy. A plan or direction selected by an agency administrator which guides wildland fire management actions intended to meet protection and fire use objectives.

Appropriate Suppression. Selecting and implementing a prudent suppression option to avoid unacceptable impacts and provide for cost-effective action.

Bureau. Bureaus, offices or services of the Department.

Class of Fire (as to size of wildland fires).
Class A - 3 acre or less.
Class B - more than 3 but less than 10 acres.
Class C - 10 acres to 100 acres.
Class D - 100 to 300 acres.
Class E - 300 to 1,000 acres.
Class F - 1,000 to 5,000 acres.
Class G - 5,000 acres or more.

Emergency Fire Rehabilitation/Burned Area Emergency Rehabilitation (EFR/BAER). Emergency actions taken during or after wildland fire to stabilize and prevent unacceptable resource degradation or to minimize threats to life or property resulting from the fire. The scope of EFR/BAER projects are unplanned and unpredictable requiring funding on short notice.

Energy Release Component (ERC). A number related to the available energy (BTU) per unit area (square foot) within the flaming front at the head of a fire. It is generated by the National Fire Danger Rating System, a computer model of fire weather and its effect on fuels. The ERC incorporates thousand hour dead fuel moistures and live fuel moistures; day to day variations are caused by changes in the moisture content of the various fuel classes. The ERC is derived from predictions of (1) the rate of heat release per unit area during flaming combustion and (2) the duration of flaming.

Extended Attack. A fire on which initial attack forces are reinforced by additional forces.

Fire Suppression Activity Damage. The damage to lands, resources and facilities directly attributable to the fire suppression effort or activities, including: dozer lines, camps and staging areas, facilities (fences, buildings, bridges, etc.), handlines, and roads.

Fire Effects. Any consequences to the vegetation or the environment resulting from fire, whether neutral, detrimental, or beneficial.

Fire Intensity. The amount of heat produced by a fire. Usually compared by reference to the length of the flames.

Fire Management. All activities related to the prudent management of people and equipment to prevent or suppress wildland fire and to use fire under prescribed conditions to achieve land and resource management objectives.

Fire Management Plan. A strategic plan that defines a program to manage wildland and prescribed fires and documents the Fire Management Program in the approved land use plan. The plan is supplemented by operational procedures such as preparedness plans, preplanned dispatch plans, prescribed fire plans and prevention plans.

Fire Prescription. A written direction for the use of fire to treat a specific piece of land, including limits and conditions of temperature, humidity, wind direction and speed, fuel moisture, soil moisture, etc., under which a fire will be allowed to burn, generally expressed as acceptable range of the various fire-related indices, and the limit of the area to be burned.

Fuels. Materials that are burned in a fire; primarily grass, surface litter, duff, logs, stumps, brush, foliage, and live trees.

Fuel Loadings. Amount of burnable fuel on a site, usually given as tons/acre.

Hazard Fuels. Those vegetative fuels which, when ignited, threaten public safety, structures and facilities, cultural resources, natural resources, natural processes, or to permit the spread of wildland fires across administrative boundaries except as authorized by agreement.

Initial Attack. An aggressive suppression action consistent with firefighter and public safety and values to be protected.

Maintenance Burn. A fire set by agency personnel to remove debris; i.e., leaves from drainage ditches or cuttings from tree pruning. Such a fire does not have a resource management objective.

Natural Fire. A fire of natural origin, caused by lightning or volcanic activity.

NFDRS Fuel Model. One of 20 mathematical models used by the National Fire Danger Rating System to predict fire danger. The models were developed by the U.S. Forest Service and are general in nature rather than site-specific.

NFFL Fuel Model. One of 13 mathematical models used to predict fire behavior within the conditions of their validity. The models were developed by US Forest Service personnel at the Northern Forest Fire Laboratory, Missoula, Montana.

Prescription. Measurable criteria which guide selection of appropriate management response and actions. Prescription criteria may include safety, public health, environmental, geographic, administrative, social, or legal considerations.

Prescribed Fire. A fire ignited by agency personnel in accord with an approved plan and under prescribed conditions, designed to achieve measurable resource management objectives. Such a fire is designed to produce the intensities and rates of spread needed to achieve one or more planned benefits to natural resources as defined in objectives. Its purpose is to employ fire scientifically to realize maximize net benefits at minimum impact and acceptable cost. A written, approved prescribed fire plan must exist

and NEPA requirements must be met prior to ignition. NEPA requirements can be met at the land use or fire management planning level.

Preparedness. Actions taken seasonally in preparation to suppress wildland fires, consisting of hiring and training personnel, making ready vehicles, equipment, and facilities, acquiring supplies, and updating agreements and contracts.

Prevention. Activities directed at reducing the number or the intensity of fires that occur, primarily by reducing the risk of human-caused fires.

Rehabilitation. Actions to (1) limit the adverse effects of suppression on soils, watershed, or other values, or (2) to mitigate adverse effects of a wildland fire on the vegetation-soil complex, watershed, and other damages.

Suppression. A management action intended to protect identified values from a fire, extinguish a fire, or alter a fire's direction of spread.

Unplanned Ignition. A natural fire that is permitted to burn under specific conditions, in certain locations, to achieve defined resource objectives.

Wildfire. An unwanted wildland fire.

Wildland Fire. Any non-structure fire, other than prescribed fire, that occurs in the wildland.

Wildland Fire Situation Analysis (WFSA). A decision-making process that evaluates alternative management strategies against selected safety, environmental, social, economical, political, and resource management objectives as selection criteria.

Wildland/Urban Interface Fire. A wildland fire that threatens or involves structures.

APPENDIX C: ENVIRONMENTAL COMPLIANCE DOCUMENTS

UNITED STATES FISH AND WILDLIFE SERVICE
HOPPER MOUNTAIN NATIONAL WILDLIFE REFUGE

ENVIRONMENTAL ACTION STATEMENT FOR THE FIRE MANAGEMENT PLAN

Within the spirit and intent of the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA), and other statutes, orders, and policies that protect fish and wildlife resources, I have established the following administrative record and determined that the action of wildland and prescribed fire activities:

Check One:

XX is a categorical exclusion as provided by 516 DM 2, Appendix 1and 516 DM 6, Appendix 1. No further NEPA documentation will therefore be made.

_____ is found not to have significant environmental effects as determined by the attached environmental assessment and finding of no significant impact.

_____ is found to have significant effects and, therefore, further consideration of this action will require a notice of intent to be published in the *Federal Register* announcing the decision to prepare an EIS.

_____ is not approved because of unacceptable environmental damage, or violation of Fish and Wildlife Service mandates, policy, regulations, or procedures.

_____ is an emergency action within the context of 40 CFR 1506.11. Only those actions necessary to control the immediate impacts of the emergency will be taken. Other related actions remain subject to NEPA review.

Other supporting documents (list):
Intra-Service Section 7 Biological Evaluation Form and Concurrence from Ventura Fish and Wildlife Office

Signature Approval:

Marc M. Weitzel, Project Leader
Hopper Mountain National Wildlife Refuge

6/18/01
Date

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

September 20, 2001

Memorandum

To: Project Leader, Hopper Mountain National Wildlife Refuge Complex
Ventura, California

From: Field Supervisor, Ventura Fish and Wildlife Office
Ventura, California

Subject: Intra-Service Section 7 Consultation on the Hopper Mountain National Wildlife Refuge Fire Management Plan

On May 7, 2001 a meeting was held at your office to discuss the Intra-Service section 7 consultation process and the effects of the Hopper Mountain National Wildlife Refuge Fire Management Plan (FMP) on the endangered California condor (*Gymnogyps californianus*). In attendance were Steve Kirkland, of my staff, Melissa Ennis and Greg Austin, of your staff, and Bill Molumby, Regional Fire Management Officer. On June 6, 2001, we received your Intra-Section 7 Biological Evaluation Form. This memorandum supplements our concurrence with your determination on that form.

The Hopper Mountain National Wildlife Refuge (Refuge), located approximately 16 road-miles northeast of Fillmore, California was established on December 18, 1974. It is specifically managed to contribute toward the recovery of the endangered California condor. The Refuge and adjacent Sespe Condor Sanctuary, located within the Los Padres National Forest, provide important nesting, roosting, and foraging areas.

In the event of a wildland fire, the Incident Commander (the designated spokesman for all firefighting agencies involved in the fire) is required under the FMP to coordinate all fire suppression activities with the on-site Refuge Manager. The Refuge Manager will identify the location of all California condors, their nest sites and the locations of other sensitive biological resources.

The FMP identifies both pre-suppression and suppression activities for Hopper Mountain National Wildlife Refuge. In addition, the FMP includes emergency response and evacuation protocols for captive California condors authorized under the Regional Fish and Wildlife Service General Permit (PRT-702631).

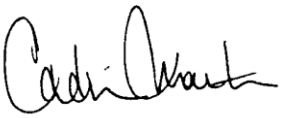
Pre-suppression activities would be conducted by Refuge staff and are described in the FMP as hazardous fuels reduction around buildings and along roads, accomplished by hand cutting, mowing and debris disposal. Debris disposal may be accomplished by scattering, chipping or pile burning the cleared vegetation. The quantity of vegetation, diameter size, crew availability, and logistical support will dictate the method used.

Suppression activities may include fire engines, fire crews, dozers, or aircraft. However, the FMP states that dozers and aircraft would not be used in areas where California condors are roosting or flying.

You determined, and we concur, that hazardous fuels reduction around Refuge structures and along Refuge roads would have no effect on California condors because work would not take place near nesting areas or in close proximity to roosting California condors. In addition, mowers and weed eaters would not be used around the Refuge flight pen when occupied by California condors. You also determined, and we concur, that aircraft overflights may affect, but are not likely to adversely affect California condors because the on-site Refuge Manager will inform the Incident Commander of their location based on visual and radio telemetry data. If California condors are found to be in the areas where aircraft use is proposed, aircraft overflights would be restricted.

This concludes section 7 consultation on the Hopper Mountain National Wildlife Refuge Fire Management Plan. If you have any questions or concerns, please contact Steve Kirkland of my staff at (805) 644-1766.

Sincerely,



for Diane K. Noda
Field Supervisor

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

Originating Person: Project Leader, Hopper Mountain NWRC
Telephone Number: (805) 644-5185
Date: June 11, 2001

I. Region: Region 1

II. Service Activity (Program): Fire Management Plan for Hopper Mountain NWRC

III. Pertinent Species and Habitat:

A. Listed species and/or their critical habitat within the action area:
California condor (*Gymnogyps californianus*)

B. Proposed species and/or proposed critical habitat within the action area: NONE

C. Candidate species within the action area: NONE

D. Include species/habitat occurrence on a map: See attached maps

IV. Geographic area or station name and action:
Hopper Mountain NWR (northeast of Fillmore, CA). Fire management actions within Fire Management Plan (pre-suppression, suppression, burn rehabilitation).

V. Location (attach map): See attached maps

A. Ecoregion Number and Name: Southern California Ecoregion

B. County and State: Ventura County, California

C. Section, township, and range (or latitude and longitude):
T4N, R19W, Sections 2, 3, 4, and 10

D. Distance (miles) and direction to nearest town:
Hopper Mountain NWR is approximately 4 to 5 air miles northeast of Fillmore, CA. The distance to drive from Fillmore to Hopper is 15.8 miles.

E. Species/habitat occurrence: See attached maps

VI. Description of proposed action (attach additional pages as needed):
See attached Hopper Mountain NWR Draft Fire Management Plan (2001)

VII. Determination of effects:

A. Explanation of effects of the action on species and critical habitats in items III.A, B, and C (attach additional pages as needed):

Pre-suppression actions (hazardous fuels reduction around buildings and roads) would not affect the species. However, fire suppression may affect, but is not likely to adversely affect California condors.

B. Explanation of actions to be implemented to reduce adverse effects:

As stated in the Fire Management Plan, restrictions will be placed on fire suppression actions. The Resource Advisor/Refuge Manager must be consulted regarding suppression actions. Precautions will be taken to avoid condors in flight, nest sites, condor roosts, and condors that may be in rearing facility on Refuge. Consultation will be done for any potential emergency burn rehabilitation work.

VIII. Effects Determination

A. Listed Species and Designated Critical Habitat:

The Proposed Action **may affect, but is not likely to adversely affect** the following species:

California condor (*Gymnogyps californianus*)

B. Proposed Species and Proposed Critical Habitat: NONE PRESENT

C. Candidate Species: NONE PRESENT

signature 6/12/01 date

[Title/office of supervisor at originating station]

IX. Reviewing ESO Evaluation:

A. Concurrence X Nonconcurrence _____

B. Formal consultation required _____

C. Conference required _____

D. Informal conference required _____

E. Remarks (attach additional pages as needed):

signature 9/20/01 date

[Title/office of reviewing official]

Acting Field Supervisor
Ventura Fish & Wildlife Office

Attachments:

2001 Hopper Mountain NWR Fire Management Plan
Hopper Mountain NWR Vicinity Map
Hopper Mountain NWR Map

APPENDIX D: FIRE PREVENTION AND CONTROL PLAN

FIRE PREVENTION AND CONTROL PLAN

PROJECT: California Condor Release Operations At Lion Canyon / Sierra Madre Ridge, Santa Barbara County, California.

PURPOSE: This plan is a supplement to the Cooperative Agreement between the United States Fish and Wildlife Service, the United States Forest Service, the California Department of Fish and Game, and the United States Bureau of Land Management

The provisions of this plan establish: (1) responsibilities and requirements for the prevention of wildland fires during the course of the project, and (2) a reporting and attack procedure in the event a fire occurs within the project vicinity. The project vicinity is identified on Map I and further identified as that area within 1/8th mile of any camp locations, release facility, blinds, feeding or trapping site, and within the rights-of-way of roads and trails used to gain access to these sites, and all sites used for helicopter landings and take-offs.

The plan also specifies conditions under which certain project activities win be curtailed or will cease, based on fire danger levels.

OBJECTIVE: To eliminate all man-caused fires within the project area and to take prompt action to report and initiate suppression operations if any were to occur.

1. RESPONSIBILITIES

A. U.S. Fish and Wildlife Service

1. The U.S. Fish and Wildlife Service (FWS) will designate an individual and an alternate who will be authorized representatives of the FWS. Such individuals will be designated as Fire Liaison Officer (FLO), and will be referred to in this plan by that title.

2. The FWS will cooperate with the Forest Service in preparation of a directory for this plan by furnishing information on all project personnel listing names, titles, addresses, and telephone numbers.

B. Fire Liaison Officer (FWS)

1. Will receive and act on all fire prevention/suppression matters related to the permitted activities.

2. Will be fully responsible for ensuring that all provisions of this fire plan are fully complied with.

3. Will see that all personnel engaged in the project are thoroughly familiar with the fire prevention requirements of this plan.

4. Will monitor or otherwise obtain daily "activity level" information via USFS radio net for the area in which work is being per-formed, and impose emergency measure stipulations as required by this plan.

5. Upon request, will accompany and assist the District Ranger or his representative on fire inspections of any or all phases of work locations of the project Will take immediate corrective measures in the event of non-compliance with the provisions of this plan.

6. In the event of a fire occurring in or near the project area, will assign those certified fire suppression personnel in the vicinity to initiate suppression action, and immediately notify the Forest Dispatcher of the fire location and action taken.

7. The alternate FLO will assume all the responsibilities and duties of the FLO in his/her absence from the project arm

C. Forest Service

1. Will prepare and keep current a directory of Forest Service personnel, listing names, titles, addresses, and telephone numbers, to be used in this plan.

2. Will inspect the project area for compliance with fire requirements and will notify the project FLO in the event of non-compliance.

II. COMMUNICATIONS

A. Helicopters

The FWS will assure that each helicopter used on the project is equipped with a radio capable of transmitting and receiving on frequency 119.950 MHz.

III. TOOLS AND EQUIPMENT

Tools and equipment to be supplied by FWS

A. Power Tools

One shovel and one chemical pressurized fire extinguisher shall be furnished and available for each portable tool powered by a gasoline-fueled internal combustion engine, such as chainsaws, generators, rock drills, etc. The required fire tools shall, at no time, be farther than 25 feet from the point of operation of said power tools. Fire extinguishers shall be of the type and size set forth in the California Public Resources Code, Section 4431 and California Administrative Code, Title 14, Section 1234.

B. Permits

The Fish and Wildlife Service shall secure a special written permit from the Forest Service before engaging in any of the activities listed below:

1. Camp, warming, or lunch fires. Fire use at camp locations will be restricted to liquid-fuel stoves only. No solid fuel combustible fires (wood, briquettes) will be allowed.

2. Burning of any debris, slash, trash, or combustibles of any type.

3. Transportation, storage, or use of any explosives and detonators.

4. Operating any vehicle off of Forest Development Roads.

C. Smoking

1. Smoking shall not be permitted except in enclosed vehicles, or while at project campsites, as designated by the District Ranger or his representative.

2. Under no circumstances shall smoking be permitted while employees are walking or working in grass, brush, or tree covered lands.

D. Flammable Vegetation Clearance

Flammable vegetation shall be removed from the following locations for the distances noted:

1. Project camp locations: 20 foot radius surrounding location of liquid fuel stoves.

2. Small mobile or stationary engine sites (e.g., portable generator): 20 foot radius surrounding engine location.

3. Release facility, base camp structures, and cannon net trapping sites: 20 foot radius surrounding said areas.

The areas to be cleared and grubbed shall be cleared, and kept cleared of flammable material such as grass, weeds, brush, downed trees, and waste materials.

E. Spark Arresters

All stationary or mobile internal combustion engines used on the project shall be provided with an adequate spark arrester. Such spark arresters shall meet Forest Service standards, and be adequately maintained. Motor trucks, passenger vehicles, and equipment powered by exhaust-driven turbo-charged engines are not subject to provisions of this paragraph, provided the exhaust system is equipped with a muffler.

IV. EMERGENCY MEASURES

A. During periods of very high or extreme fire danger, project activities may be restricted or terminated on a temporary basis until weather conditions improve.

B. Vegetation moisture content and wind speeds at the nearest Forest Service weather station will be measured daily by the Forest Service and a subsequent "Activity Level" determined. The Activity Level predicted for the following day will govern the extent of limitations or requirements regarding Permittee's activities as follows:

The Activity Level from Ozena Station will govern this project.

Weather information is given daily around 4:00 p.m. over the Los Padres National Forest radio net.

Activity Level	**Limitations or Requirements**
1,2,3	Minimum as required by State and Federal fire laws and general provisions of this plan.
4	Stop all project activities at 1:00 p.m. (local time). No welding, burning or blasting shall be permitted at any time during the day. Certain work in non-hazardous areas may continue if specifically permitted in writing by the District Ranger or hiss representative.
5	All activities to be shut down, except that certain work in non-hazardous areas may continue if specifically permitted in writing by the District Ranger.

C. The above requirements are cumulative and are tied directly to the Activity Level as it is predicted for each day. The FLO will be notified by 4:30 p.m. (local time) each day when the Predicted Activity Level for the following day will equal or exceed that shown above.

D. A review of the Activity Level will be made by 1:00 p.m. the following day and the FLO will be notified if the Actual Activity Level exceeds the Predicted Activity Level given the previous day.

V. U.S. FISH AND WILDLIFE SERVICE DIRECTORY OF PERSONNEL AND ORGANIZATION

Name / Title	Address	Home Phone
Marc Weitzel, Project Leader	Box 5839 Ventura, CA 93005	(805) 569-1047
David Ledig, Asst. Proj. Leader	Box 5839 Ventura, CA 93005	(805) 646-0295
David Clendenen, Sen. Wldlf. Biol.	Box 5839 Ventura, CA 93005	(805) 649-2934
Greg Austin, Sup. Wldlf. Biol.	Box 5839 Ventura, CA 93005	(805) 649-9708
Jeanne Tinsman, Gen. Biol.	Box 5839 Ventura, CA 93005	(905) 524-7493
Greg Brown, Bio. Tech	Box 5839 Ventura, CA 93005	(805) 524-0355
Dan Peterson, Bio. Tech.	Box 5839 Ventura, CA 93005	(805) 524-0355
Doug Laye, Bio. Tech.	Box 5839 Ventura, CA 93005	(805) 524-0355
Jennifer Gibson, Bio. Tech.	Box 5839 Ventura, CA 93005	(805) 524-0355
Chris Barr, Bio. Tech.	Box 5839 Ventura, CA 93005	(805) 524-0355
Sherry Beck, Bio. Tech.	Box 5839 Ventura, CA 93005	(805) 524-0355
Chuck Woodard, Bio. Tech.	Box 5839 Ventura, CA 93005	(805) 524-0355
Rob Shragg, Bio. Tech.	Box 5839 Ventura, CA 93005	(805) 524-0355

VI. FOREST SERVICE DIRECTORY OF PERSONNEL AND ORGANIZATION

Mark Bethke, District Ranger	Star Route Box 400 Frazier Park, CA 93225	(805) 245-3731
Jim Smith, Fire Mgt. Officer	Star Route Box 400 Frazier Park, CA 93225	(805) 245-3731
Kim Smith, Unit Ranger	Star Route Box 400 Frazier Park, CA 93225	(805) 245-3731
Usa Walsh, Resource Officer	Star Route Box 400 Frazier Park, CA 93225	(805) 245-3731
Kenny Shaw, District Engineer	Star Route Box 400 Frazier Park, CA 93225	(805) 245-3731
Loreigh Brannon, Lands Officer	Star Route Box 400 Frazier Park, CA 93225	(805) 245-3731
Maeton Freel, Forest Biologist	6144 Calle Real Goleta, CA 93117	(805) 683-6711

APPROVED BY:

For the **U.S. FISH AND WILDLIFE SERVICE:** **S/Marc M. Weitzel** — Project Leader, Ventura, CA — **22 Oct. 93** Date

For the **U.S. FOREST SERVICE:** **S/Mark Bethke** — Mt. Pinos District Ranger, Frazier Park, CA — **Nov. 14, 1993** Date

APPENDIX E: DELEGATION OF AUTHORITY

Region 1, U.S. Fish and Wildlife Service
Hopper Mountain National Wildlife Refuge

_____, you are assigned as Incident Commander of the _____ Incident, on the Hopper Mountain National Wildlife Refuge. You have full authority and responsibility for managing the fire suppression operation on this incident within the framework of legal statute, current policy, broad direction, and the Wildland Fire Situation Analysis (WFSA). Your primary responsibility is to achieve complete control of the fire by organizing and directing the fire suppression organization in an effective, efficient, and economical manner.

You should be guided in your duties by the fire job descriptions relating to Incident Commander, as found in the Fireline Handbook. Strongly consider long-term ecosystem health, and the effects of suppression actions in the development of appropriate suppression responses. These issues are to be addressed and documented in the WFSA.

You are accountable to the Refuge Manager _____ of the Hopper Mountain National Wildlife Refuge, who is the Line Officer. _____, is the Line Officer Representative for this incident.

You will immediately notify me in person in the event of:
(1) a serious injury or fatality,
(2) threat to private property,
(3) if the incident exceeds the limits of the selected alternative of the WFSA.

Much of the Hopper Mountain National Wildlife Refuge is home to an endangered species. Your job as Incident Commander is critical, as you must minimize damage to the habitats, as well as provide for fire fighter safety. Minimum environmental suppression tactics shall be used, commensurate with forecasted and threatened resource values.

You are to be guided by the Wildland Fire Situation Analysis, approved by _____, Project Leader.

All ordering is to be done through the Los Padres National Forest Emergency Command Center in San Luis Obispo, Ca.

The Resource Advisor assigned to your incident will be _____.

_____ Date: _____
, Project Leader

APPENDIX F: COOPERATIVE AGREEMENTS

FIRE MANAGEMENT AGREEMENT
between the
U.S. FISH AND WILDLIFE SERVICE
and
LOS PADRES NATIONAL FOREST
of the
UNITED STATES DEPARTMENT OF AGRICULTURE

FWS Agreement No.: _____
Charge Code: _____
Amount Obligated: _____
Recipient Tax Identification No.: _____
CFDA No. (If applicable): _____

I. TYPE OF AGREEMENT:

___ Grant
___ Cooperative Agreement
___ Private Lands
___ Challenge Cost-Share
___ Inter-Agency
_X_ Intra-Agency

II. TYPE OF ORGANIZATION

___ State, Local or Indian Gov.
___ Non-Profit Organization
___ Higher Education Inst.
___ Private Individual
___ Business Organization
_X_ Federal Agency

III. PARTICIPANTS:

Funding Organization:
Hopper Mt. National Wildlife Refuge

Recipient Organization:
Los Padres National Forest

IV. PROJECT OFFICERS:

FWS Officer: Manager, CNO
Name: Mike Spear
Phone: (916) 414-6464

Recipient: Forest Supervisor
Name: Jeanine A. Derby
Phone: (805) 681-2731

V. PURPOSE/OBJECTIVE:

Fire management in the nation's wildlands continues to be a matter of concern to the American public and to the land management Bureaus of the Department of the Interior and the Department of Agriculture, Forest Service. Considerable progress has been made in fire management planning, fire use, and suppression by all agencies. More progress can be made by closer cooperation and coordination among agencies. Cooperation in all aspects of fire management has benefitted all agencies. Because fire recognizes no boundaries, programs must lead to more productive cooperation and efficient operations between agencies. The Los Padres National Forest (hereafter called FS) and Hopper Mountain National Wildlife Refuge (hereafter called NWR/FWS) share geographic borders. Both agencies share similar interests and land management values and resources requiring protection and enhancement, particularly, the California Condor Recovery Program of which the Hopper Mtn. NWR and Sespe Condor Sanctuary (FS) are a part of. It is in the best interest of both parties to cooperate in pre-suppression, prescribed fire, and wildland fire suppression actions. The American public will benefit from this cooperation by better protection of the ecosystems and more efficient use of personnel and budgets.

Objectives of this agreement are:

A. To provide an agreement and operating plan for cooperative fire protection, pre-suppression activities and prescribed fire management between the NWR/FWS and FS.

B. To facilitate the exchange of personnel, equipment, supplies, services, and funds between the NWR/FWS and FS as it relates to this agreement.

C. To protect the ecosystem from unnecessary suppression damage.

D. To reduce costs and apply wise economic management to existing local resources.

VI. AUTHORITY:

A. Interagency Agreement between the BLM, BIA, NPS, FWS, and Forest Service, May 5, 1987, as amended.

B. Protection Act of 1922 (16 U.S.C. 594)

C. Reciprocal Fire Protection Act of May 27, 1955, (69 Stat. 6; 42 U.S.C. 1856a).

D. Economy Act of June 30, 1932 (47 Stat. 417; 31 U.S.C. 1535), as amended.

E. Federal Land Policy and Management Act of 1976 (43 U.S.C. 1702)

F. National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee; 80 Stat.927), as amended.

G. Disaster Relief Act of 1974 (42 U.S.C. 1521)

H. Cooperative Forestry Assistance Act of 1978 [PL 95-313, 92 Stat. 365 as amended; 16 U.S.C. 2101 (note), 2101-2103, 2103a, 2103b, 2104-2105]

VII. FUNDING INFORMATION:

A. Each agency shall make direct settlement from its own funds for all liabilities it incurs under this agreement, except for workers compensation claims determined to have occurred on each others projects.

B. Parties to this agreement are not obligated to make expenditures of funds under the terms of this agreement unless such funds are appropriated for the purpose by the Congress of the United States, or are otherwise legitimately available under section 101 and 102 of the annual Appropriations Acts. If some extraordinary emergency or unusual circumstance arises which could not be anticipated involving an expenditure in excess of available funds for the protections of life or property, all agencies shall seek supplemental appropriations to meet their respective shares of such emergency obligations.

C. Financial obligations under this agreement, to accomplish activities under Section IX., must be approved by the responsible officers at the appropriate level operating within their authority.

D. Procedures for assigning charge codes and incident numbers will be identified in the annual operating plan.

E. Billing and collection procedures will follow the current payment and accounting system process.

F. Economy Act Determinations to support reimbursement are not required because the Reciprocal Fire Protection Act specifically authorizes the execution of agreements between agencies of the United States and other agencies and instrumentalities for mutual aid in fire protection and other fire management purposes. It is stated in the Federal Acquisition Regulations (FAR) 17.500(b) that the Economy Act only applies when more specific authority does not exist.

VIII. TERM OF AGREEMENT:

This agreement will take effect on the date of the last signature. This Agreement shall remain in effect until terminated.

IX. SPECIFIC OBLIGATIONS OF EACH PARTY:

A. Cooperative fire management activities to include fire prevention patrol, joint prescribed burns and wildland fire suppression on the Hopper Mtn. NWR and adjoining FS land as available.

B. The FS will provide initial attack and extended attack service to the NWR/FWS.

C. NWR/FWS will provide overhead personnel, equipment as available, resource advisors, and participate in the preparation of a Wildland fire Situation Analysis (WSA) on all wildland fire incidents.

D. FS and NWR/FWS will jointly plan and implement prescribed burns that are consistent with the condor recovery program when feasible.

E. FS and NWR/FWS will share training opportunities to each other's employees for resource and fire courses.

F. The Los Padres Emergency Command Center (ECC) will be the ordering point of resources for wildland fires occurring on either NF or NWR/FWS land unless superseded by a Direct Protection Agreement.

G. The FS and NWR/FWS will promptly notify each other of any and all fire burning or threatening of each others lands.

H. Appropriate suppression strategies and tactics will be used as they apply for both the Hopper Mtn. NWR and Sespe Condor Sanctuary.

I. Each of the parties agrees to provide resources and support as requested, to the best of their abilities, for non-fire projects. Such use of personnel and resources will be on a full reimbursement basis.

X. TERMINATION

Any signatory agency may terminate their participation in this agreement by written notice to the other signatory provided that such notice shall be given between the dates of October 31 and the following April 1. Termination will take effect 30 days after receipt of termination notice.

XI. MODIFICATION PROCEDURES:

Amendments and modification to this agreement may be initiated by either signatory agency. The amendments shall not take effect until documented and signed by both agencies.

XII. SPECIAL PROVISIONS:

A. Billing procedures for fire management activities are as follows:

1. Emergency Fire Suppression - Agencies shall not bill for services rendered by the signatory agencies of this agreement.

2. Fire Management Projects - Agencies may chose to bill by mutual agreement as outlined in the master Interagency Agreement between the Forest Service and Department of Interior Bureaus/Services.

3. Fire Pre-suppression (including severity) - Agencies may choose to bill by mutual agreement.

B. Annually, by May 1 of each year, the operating plan will be reviewed and updated as necessary by both agencies. (Appendix A)

C. NWR/FWS authorizes the FS to pursue full recovery for suppression costs on all trespass fires occurring on refuge lands. Any and all suppression rehabilitation cost recovery is included in this agreement.

XIII. RELATED ATTACHMENTS:

The Annual Operating Plan will be added as a Appendix A, to permit annual reviews and updates.

FOR THE U.S. FISH AND WILDLIFE SERVICE:

By: Signature: _____ Date: _____
Michael J. Spear

Title: Manager, California/Nevada Operations,
U.S. Fish & Wildlife Service

FOR THE LOS PADRES NATIONAL FOREST:

By: Signature: _____ Date: _____
Jeanine A. Derby

Title: Forest Supervisor, Los Padres National Forest,
USDA Forest Service

FWS CONTRACT SUFFICIENCY REVIEW:

By: Signature: _____ Date: _____
Contracting Officer FWS #

FS CONTRACT SUFFICIENCY REVIEW:

The authority and format of this instrument has been reviewed and approved for signature.

By: Signature: _____ Date: _____
Contracting Officer FS #

OPERATION PLAN
for
LOS PADRES NATIONAL FOREST
and
HOPPER MOUNTAIN NATIONAL WILDLIFE REFUGE

FIRE MANAGEMENT AGREEMENT

1. Hopper Mountain NWR/FWS will provide a Fire Management Plan that lists fire management objectives and constraints for use by the FS in implementing any suppression operations.

2. Los Padres National Forest will notify NWR/FWS of all fires on or threatening refuge lands and will request a resource advisor and other overhead be assigned as appropriate.

3. The resource advisor will work with the Incident Commander to assure NWR/FWS objectives are met, and assist in preparing a Wildland fire Situation Analysis (WFSA) if necessary.

4. On unified command incidents with Ventura County/CDF, an NWR/FWS agency representative will consult with both Incident Commanders on all actions affecting the refuge.

5. NWR/FWS will provide Los Padres ECC a list of all NWR/FWS personnel, call signs, and emergency phone numbers.

6. Incidents starting on NWR/FWS land will be identified by the three letter designator "HMR". The Los Padres ECC will produce both an incident number and forest service cost code for ordering resources. If Department of Interior agency resources are ordered then Operation - Southern California will procure a cost code for those resources through appropriate channels.

7. In other than fire emergencies FS should make the following contact to gain access to the refuge; refuge manager, deputy project leader, and project leader. Gate access combinations will be maintained by the Los Padres ECC. For fire emergencies, the notification process will remain the same as outlined in item 2.

8. Emergency Contacts:

<u>Hopper Mountain NWR</u>

Bill Molumby	office	619-669-6651
Fire Management Officer	home	619-445-0155
	ECC	619-557-5262
Melissa Ennis	office	805-644-5185
Refuge Manager	home	805-278-2297
Marc Weitzel	office	805-644-5185
Project Leader	home	805- 647-5532
Greg Austin	office	805-644-5185
Deputy Project Leader	home	805-649-9708

Andy Anderson Regional FMO	office home cell	503-231-6175 360-666-5031 503-805-1312	
<u>Los Padres NF</u>			
Emergency Command Center	Emergencies Business	805-961-5727 805-541-0312	 ext. 0
Patrick Pontes Forest Fire Management Officer	office	805-961-5741	
Lonnie Briggs Deputy Forest Fire Management Officer	office	805-961-5722	
vacant Division Chief	office	805-646-4348	ext. 321

9. All wildland incidents will be operated on FS fire frequencies. The following frequencies are authorized for administrative purposes:

	Receive/Transmit	**Tone**	
Hopper Mtn. NWR	163.150/163.150		
	163.150/164.625	5	(146.2)

	Receive/Transmit	**Tone**	
Los Padres NF	170.550/170.550		
	170.550/169.900	2 or 6	(123.0/156.7)
	170.475/170.475		
	172.350/172.350		

10. At the annual operations meeting, refuge maps will be provided to the FS displaying any updates.

DRAFT COOPERATIVE FIRE PROTECTION AGREEMENT
between the
U.S. FISH AND WILDLIFE SERVICE
and
VENTURA COUNTY FIRE DEPARTMENT

FWS Agreement No.: 116301J000
Charge Code: 11630-9261-0000
Amount Obligated: N/A
Recipient Tax Identification No.: _____
CFDA No. (If applicable): _____

I. TYPE OF AGREEMENT:

___ Grant
_X_ Cooperative Agreement
___ Private Lands
___ Challenge Cost-Share
___ Inter-Agency
___ Intra-Agency

II. TYPE OF ORGANIZATION

_X_ State, Local or Indian Gov.
___ Non-Profit Organization
___ Higher Education Inst.
___ Private Individual
___ Business Organization
___ Federal Agency

III. PARTICIPANTS:

Funding Organization:
(Insert name and address of each administering office.)

Recipient Organization:

IV. PROJECT OFFICERS:

(Insert names, phone numbers and, as applicable, e-mail addresses)

FWS Officer:
Name:
Phone:

Recipient:
Name:
Phone:

V. PURPOSE/OBJECTIVE:

The Hopper Mountain National Wildlife Refuge (NWR) is located on property directly adjacent to wildland under direct protection of Ventura County Fire Department (VNC). VNC maintains prevention, detection and suppression forces to protect property and land that it is responsible for. NWR does not have a suppression organization for this purpose, therefore relies on a cooperative fire protection agreement to suppression structural and wildland fires on the refuge. The Los Padres National Forest (LPNF) provides wildland services to the NWR under a cooperative fire protection agreement. Both the LPNF and VNC have cooperative fire protection agreements for their own lands which do not cover this situation. It is mutually advantageous and in the public interest for the parties to this Agreement to coordinate and assist in each other's efforts in prevention, detection, and suppression of structural and wildland fires in and adjacent to their areas of responsibilities.

The purpose of this Agreement is to provide fire aid and coordination between the parties in order to more efficiently and effectively detect, prevent, and suppress fires within the jurisdictions of the respective parties. This agreement also authorizes payment for reimbursable expenses as outlined herein. Assistance will only be provided when the resources are available and can be committed without severely impacting either party's ability to protect its own jurisdiction.

Emergency services requested other than for wildland fire or for presuppression projects require negotiation under separate authority.

VI. AUTHORITY:

This agreement, entered into between the FWS, Hopper Mountain National Wildlife Refuge hereinafter referred to as the FWS, and Ventura County Fire Department, hereinafter referred to as VNC, under the provisions of the Reciprocal Fire Protection Act of May 27, 1955 (42USC 1856), Granger-Thye Act of April 24, 1950 (16 USC 572), and Cooperative Funds of Act of June 30, 1914 (16 USC 498).

VII. FUNDING INFORMATION:

Nothing herein shall be considered as obligating either party to expend funds or otherwise obligate either party for the future payment of money in excess of appropriations authorized by law and administratively allocated for the activities associated with this agreement.

VIII. TERM OF AGREEMENT:

This agreement will become effective upon the date of the last signature. Unless terminated by written notice, this Agreement shall remain in force for 5 years from date of execution.

IX. SPECIFIC OBLIGATIONS OF EACH PARTY:

A. The VNC shall make initial attack on structure and wildland fires on those FWS lands identified in the Annual Operating Plan.

B. Both parties agree:

1. The parties will prepare an Annual Operating Plan to identify reciprocal initial attack areas.

2. The Protecting Agency shall not be required to reimburse the Supporting Agency for its costs when a fire is controlled by the Supporting Agency's planned initial attack force within the first 4 hour period.

3. The Protecting Agency shall reimburse the Supporting agency for all reimbursable work (See Definition L) performed in the first 24 hours.

4. Wildland fires resulting from prescribed fires which escaped and which were ignited by or at the direction or under the supervision of one of the parties to this Agreement shall be the responsibility of that party. All suppression costs shall be borne by the responsible party.

5. Supporting Agency(ies) will provide resources as current conditions permit.

6. This agreement supersedes any agreement between the VNC and any other agency as it relates to those FWS lands.

X. REPORTING REQUIREMENTS:

A. Personnel of either party shall, upon discovering or receiving reports of wildland fires on areas protected by the other, report such wildland fires promptly to the responsible party as described in the annual Operating Plan.

B. Parties shall furnish each other or otherwise make available upon request such maps, documents, instructions, and law enforcement reports, which either agency considers necessary in connection with this Agreement.

C. When the Supporting Agency suppresses wildland fires burning wholly or in part on the Protecting Agency's lands, the necessary fire report data shall be forwarded to the responsible official identified on the Annual Operating Plan.

XI. INVOICING/ACCEPTANCE PROCEDURES:

A. Payments for reimbursable services under this Agreement shall be made no less frequently than once per year. Each party shall furnish the other with an itemized statement of the reimbursable expenses incurred for the other party.

B. When one party performs work or otherwise incurs expenses for which the other party is responsible, the officers-in-charge shall reach agreement on specific work to be performed. Total costs of such work, including overhead costs, are reimbursed.

C. All recipients not currently receiving funds electronically from the Department of the Interior or Fish and Wildlife Service are responsible for completing a Standard Form 3881 (ACH) and forwarding it to the Service Project Officer. Form is available from the Project Officer.

D. Cost share agreements require the review and approval of a FWS representative prior to the obligation of FWS funds.

XIII. TERMINATION

This agreement may be terminated by any party following 30 days written notification to other party(s).

XIV. MODIFICATION PROCEDURES:

Modifications to this Agreement may be proposed by either party and shall become effective upon written concurrence of all parties. Work completed prior to approval of a modification is done at the Recipient's risk, without expectation of reimbursement.

XV. SPECIAL PROVISIONS:

A. The parties signatory to this Agreement hereby waive all claims between and against each other, arising in the performance of this Agreement, for compensation for loss or damage to each other's property, and personal injury, including death, of employees, agents and contractors, except that this waiver shall not apply to intentional torts or acts of violence against such persons or property.

B. Each agency shall be responsible for the training of their respective fire suppression personnel.

C. Either party, through any authorized representative, may have access to and the right to examine all books, papers, or documents related to this Agreement.

D. Parties shall comply with all Federal statutes relating to nondiscrimination and all applicable requirements of all other Federal laws, executive orders, regulations and policies. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (42 USC 2000d), which prohibits discrimination on the basis of race, color, handicap, or national origin.; (b) Title IX of the Education amendments of 1972, as amended (20 USC 1681-1683), which prohibits discrimination on the basis of sex.

E. Fire prevention and law enforcement efforts shall be coordinated to the maximum extent possible, at all levels of both parties. Each party shall render mutual assistance in law enforcement activities and the gathering of evidence, and in actual court prosecutions to the fullest extent practicable.

F. Supporting Agency shall adhere to the suppression, mop up, and rehabilitation standards of the Protecting Agency.

G. A LPNF chief officer will represent the FWS on initial attack fires and has the authority to enter into unified commands representing the FWS prior to the arrival of a FWS representative.

H. When a wildland fire is on or threatening lands of both parties, either agency may, upon its own initiative and without reimbursement, go upon lands of the other to engage in wildland fire suppression activities for the protection of its lands.

I. When a wildland fire is burning on or near lands o both parties the officer-in-charge who arrives first will act as Incident Commander. When both parties have arrived, the officers-in-charge for each party will mutually agree to the designation of Incident Commander.

J. Personnel dispatched by the Supporting Agency under the terms of the Operating Plan shall be considered as employees of the Supporting Agency. That Supporting Agency shall be responsible for the welfare of such personnel, including the treatment of any injuries which may result on any fire or en route to or from any fire, as provided by the laws and regulations under which each party operates.

K. Equipment owned and used by either party to suppress fires in lands for which the other is responsible shall normally be operated, serviced, and repaired by the owning agency. Exceptions to this practice, where needed, shall be agreed to in writing by both parties, in advance.

L. When either party requests reimbursable assistance from the other, the sending agency shall dispatch only personnel who meet or exceed the minimum requirements for the training and physical standards of the National Interagency Fire Qualification System.

M. All aircraft and pilots used to transport FWS personnel or that are directly controlled by the forest Service shall be certified by a qualified Forest Service or United States Department of Interior Office of Aviation Services inspector prior to Forest Service work.

N. The Annual Operating Plan shall identify any special use permits that may be needed for fire control purposes.

O. Employees of the parties to the Agreement shall at all times be subject only to the laws, regulations, and rules governing their employment, regardless of incident location, and shall not be entitled to compensation or other benefits of any other than specifically provided by the terms of their employment.

P. Any service performed hereunder by any officer or employee of the United States or any member of any armed Forces of the United States shall constitute service rendered in line of duty in such office, employment, or force. The performance of such service by any other individual shall not constitute such individual an officer or employee of the United States for the purposes of the Federal Employees Compensation Act, as amended.

XVI. RELATED ATTACHMENTS:

A. Annual Operating Plan

XVII. DEFINITION OF TERMS:

A. **Annual Operating Plan.** Parties will meet annually, prior to the initiation of fire season to prepare an Operating Plan. This plan will include protection area maps for all parties, current rates for use of equipment, list of principal personnel, dispatching procedures, and any other items identified in this agreement as necessary for efficient implementation.

B. **Boundary Line Fires.** Fires that burn on adjoining lands of both parties or threaten to burn across fire protection boundaries. These include those situations where the actual location of the fire protection boundary is uncertain.

C. **Cooperative Fire Protection.** Specific fire protection services furnished by one party to the other on a reimbursable basis pursuant to the Annual Operating Plan.

D. **Direct Costs.** Costs directly related to the suppression effort. These costs do not include dispatch or other administrative costs.

E. **Fire Prevention.** Activities directed at reducing the number of person-caused fires, including public education, law enforcement, dissemination of information, and the reduction of hazards.

F. **Jurisdictional Agency.** Agency which has overall land and resource management and/or protection responsibility as provided by Federal or State law.

G. **Overhead Costs.** Costs not directly chargeable to suppression efforts, but which are part of the overall cost of operation. VNC overhead costs are chargeable at the current VNC overhead assessment rate.

H. **Prescribed Fire.** The planned or permitted use of fire to accomplish specific land management objectives.

I. **Protecting Agency.** The agency providing fire management services to a given area pursuant to this Agreement.

J. **Reciprocal Fire Protection (Mutual Aid).** Automatic initial attack response by suppression resources as specified in the Operating Plan for specific pre-planned initial attack response areas and provided at no cost to the Protecting Agency for the first 24 hours from time of initial report.

Aid is limited to those resources included in move-up and cover assignments that have been determined to be appropriate in the Annual Operating Plan.

K. **Reimbursable Work.** Reinforcements exceeding reciprocal fire protection services furnished by either party, at the request of the other, or fire protection furnished as a chargeable cooperative fire protection service.

L. **Supporting Agency.** An agency directly contributing suppression support or service resources to the agency possessing direct fire protection responsibility for the area upon which an incident is located.

M. **Suppression.** All work of confining and extinguishing a fire beginning with its discovery.

FOR THE U.S. FISH AND WILDLIFE SERVICE:

By: Signature: _____ Date: _____

Title: _____

FOR THE RECIPIENT:

By: Signature: _____ Date: _____

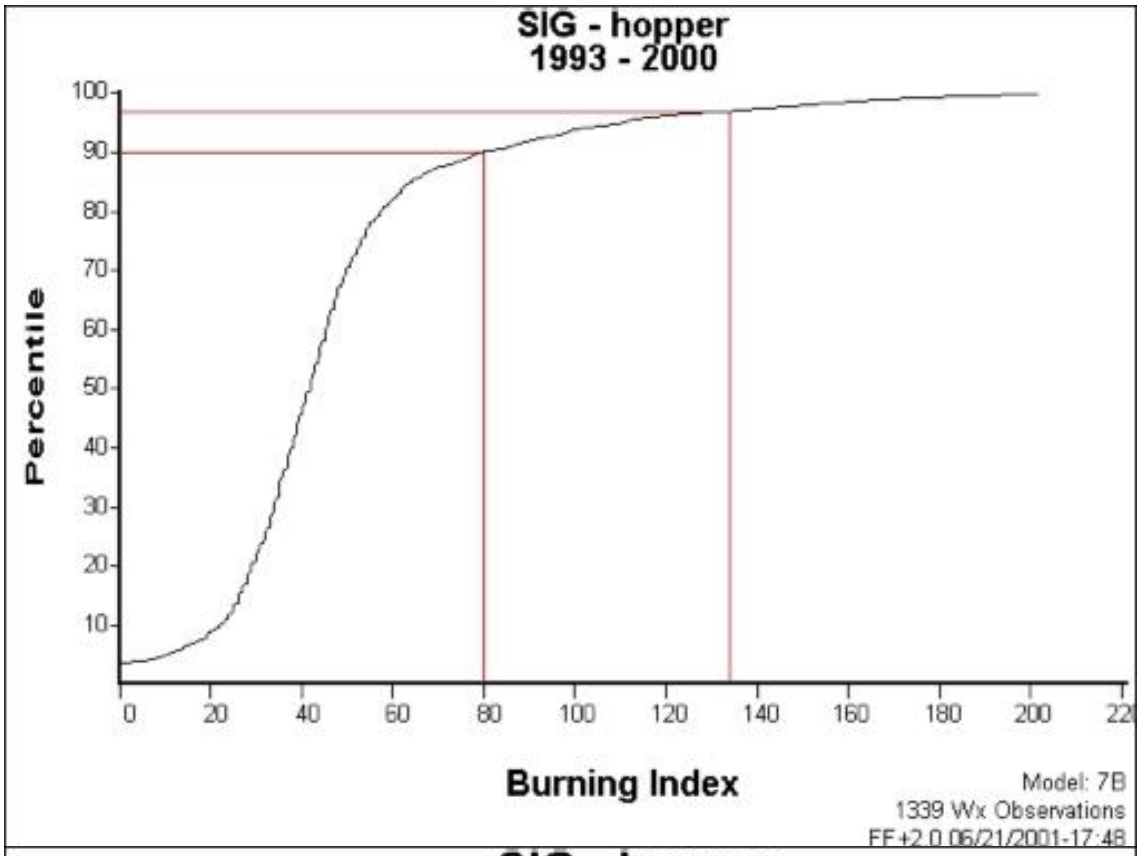
Title: _____

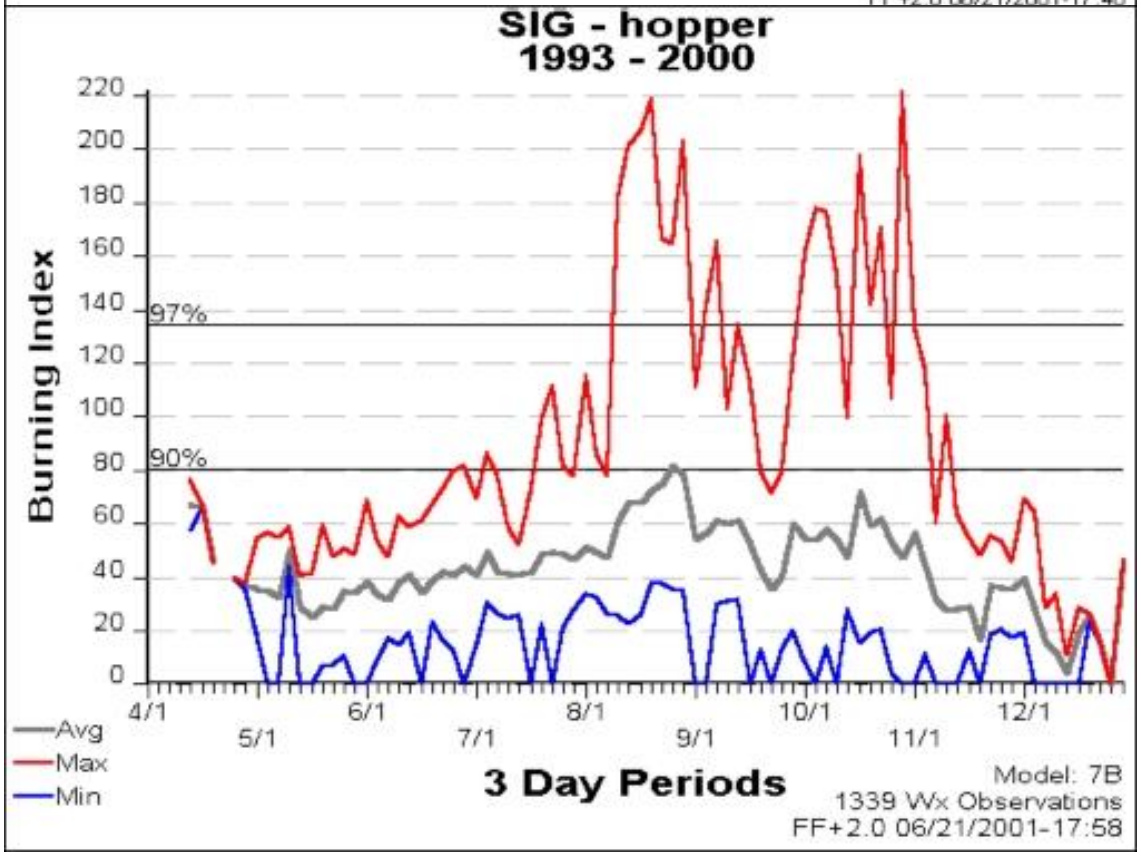
FWS CONTRACT SUFFICIENCY REVIEW:

By: Signature: _____ Date: _____

Title: Contracting Officer FWS #

APPENDIX G: WEATHER ANALYSIS





APPENDIX H: HOPPER MOUNTAIN NATIONAL WILDLIFE REFUGE STEP-UP PLAN

Staffing Class	Burning Index	Step-Up Action
1	0-19 (Low)	Mandatory: - No actions.
2	20-39 (Moderate)	Mandatory: - Fire Management Officer available by radio or phone within 2 hrs. - Fire safety precautions implemented.
3	40-79 (High)	Mandatory: - Same as SC1. Authorized: - Refuge patrols for prevention and detection purposes.
4	80-134 (Very High)	Mandatory: - Same as SC1. - Project work to be evaluated for risk hazard. - Notify all field personnel of fire danger. - Red carded refuge personnel will be identified by name, position and availability. Authorized: - Same as SC3. - Pre-positioning of suppression resources based on FMH 3.1.
5	135 + (Extreme)	Mandatory - Same as SC4. - No mechanized field work. Authorized: - Same as SC4. - Refuge closures based on FMH section 3.1.

1. **Predicted Burning Indexes** - These are the predicted burning indexes which are computed daily by the Los Padres National Forest ECC from Area 600 RAWS. These indexes will be broadcast each day at 1600 for the following work day and planned accordingly.

2. **Fire Replacement** - Fire replacement may be made to positions vacated by fire assignment that would normally be occupied and paid by 9251/9263 funds. Replacement may be made as staffing classes dictate.

3. **Days Off** - These are normal days off in a 7 day week.

4. **Regular Tour** - The regular daily tour of duty for fire engines personnel will be from 0830 to 1700 with a half hour for lunch. Days off will be dictated by fire occurrence analysis in FIREBASE. The Duty Officer schedule will work a similar schedule with overlapping days off.

5. **Extended/Weekend Coverage** - Extended/weekend coverage will be based on current high probability of fire starts due to incendiary fire occurrence, dry lightning, sustained dry windy conditions or some other high risk condition. This would apply to all hours outside of regular tours of duty.

6. **Mandatory Actions** - These are actions which must be met with little or no deviation unless other situations mitigate or otherwise preclude their action.

7. **Authorized Actions** - These are actions which may be implemented based on local conditions and other extenuating circumstances which warrant the actions.

8. **Severity Augmentation** - Escalated preparedness authorized when justified and approved based on an extend period of abnormal fire potential and is used to meet increased preparedness demands.

9. **Pre-positioning of Resources** - short-term placement of suppression resources to prepare for fire emergencies when weather or other events increase the fire danger beyond what is normal.

10. **Risk Hazard** - Those refuge, contractor, or public activities which present a possible risk of starting a wildland fire, i.e., welding, combustion engines, blasting, etc.

APPENDIX I: ANNUAL PREPAREDNESS ACTION GUIDE

	Month											
ACTIVITY	1	2	3	4	5	6	7	8	9	10	11	12
Update Interagency Fire Agreements/AOP's	x											
Review and Update Fire Management Plan	x											
Pump Annual Maintenance	x											
Update Dispatch Plan		x										
Inventory Fire Cache		x										
Review Risk Analysis			x									
Annual Refresher Training				x								
Annual Fitness Testing				x								
Agreement(s) Review with Cooperators				x								
Hazard Reduction Maintenance					x							
Identify Training Needs for Next FY									x			
Prescribed Fire Plan Preparation										x		

Activities should be completed prior to the end of the month that is indicated.

APPENDIX J: FIRE CACHE INVENTORY

Hopper Mountain National Wildlife Refuge

Item	Cache Quantity	
	Required	Inventory
Hose, lightweight, lined 1.5" x 100'	11	11
Hose, lightweight, lined 1" x 100'	11	11
1" NH gated wye	6	3
1.5" NH gated wye	6	3
1.5" nozzle	6	6
1" nozzle	6	6
Hydrant wrench, spanner	2	0
Hose clamp	6	4
1.5" - 1" reducer adapter	5	5
Pulaski w/sheath	6	8
Shovel w/sheath	6	6
McCleod	6	7
Combi tool	0	0
Drip Torch	1	1
Fusees	3 Case	3 Cases
Safety Can: 2.5 Gallon	0	0
Foam (5 gallon pail)	0	0
Backpack Pump	2	2
Canteen, 1 gallon	4	3
Canteen, 1 quart	10	10
Belt Weather Kit	1	1
Hard Hat Liner	2	0
Hard Hat	8	16
Safety Glasses - tinted	0	0
Safety Glasses - clear	0	0
Goggles	8	4
Headlamps	8	6

Item	Cache Quantity	
	Required	Inventory
Fire Shelter w/Liner	8	7
Line Pack w/harness	2	2
Ear Plugs	4 pks	0 pks
Leather Gloves, Assorted sizes	6 pr	8
Sleeping Bags	0	0
Personal Gear Pak (Red Bag)	0	0
Personal First Aid Kit	0	0
Nomex Shirts:	6	9
Small		
Medium		
Large		
X-Large		
Nomex Pants:	6	8
28x30		
32x30		
32x34		
34x30		
34x32		
34x34		
36x30		
36x32		
36x34		
38x34		
40x34		
Neck Shroud	0	0

APPENDIX K: SUPPRESSION GUIDELINES

Aircraft

All responding aircraft should be advised of the possibility of California condors in the area. The Refuge Manager must be consulted regarding restrictions on overflights, such as avoiding Hopper Canyon, nesting sites, and the Sespe Condor Sanctuary. Visual avoidance should also be used as a precaution.

Helicopters - Use natural openings for helispots. Consult resource advisor prior to new helispots construction. Avoid overflights of Hopper Chick Rearing facility if occupied and Hopper Canyon and Sespe Condor Sanctuary if condors are in the vicinity.

Retardant/Foam - Specific guideline for retardant and foam is found in Appendix T. Retardant and foam may be used except in the location of the "Pinnacles" cultural resource site (latitude: 34°26'30" and longitude: 118°50'30"). Retardant and foam will not be dropped closer that 300' from any wetland or riparian area.

Mechanized Equipment

chainsaws - may be used without permission. Avoid excessive limbing and felling if fire spread is not a factor. Make all cuts flush with the ground. In lieu of felling, identify hazard trees with a lookout or flagging.

pumps - May be used except near Chick Rearing facility if occupied. All pumps and fuel will have containment procedures in case of fuel spill.

engines - No limitations except for the use of foam near standing water or stream beds where water flow may be likely (see appendix T).

dozers - Except to prevent loss of human life or real property, dozers will be limited to ridge lines and slopes greater than 15%. Attempt to use old dozer lines. Consult resource advisor prior to initiating new dozer lines.

off road travel - Vehicle travel should be limited to existing roads and dozer lines. Other off road vehicle travel is prohibited.

WILDLAND FIRE

SITUATION ANALYSIS

Incident Name: _____

Jurisdiction: _____

Date and Time Completed: _____

I. WILDLAND FIRE SITUATION ANALYSIS

A. Jurisdiction(s)	**B. Geographic Area**
C. Unit(s)	**D. WSFA #**
E. Fire Name	**F. Incident #**

G. Accounting Code: _____

H. Date/Time Prepared: _____ @ _____

I. Attachments: _____

Complexity Matrix/Analysis * _____

Risk Assessment/Analysis * _____

Probability of Success * _____

Consequences of Failure * _____

Maps * _____

Decision Tree ** _____

Fire Behavior Projections * _____

Calculations of Resource Requirements * _____

Other (specify) _____

* Required

** Required by FWS

This page is completed by the Agency Administrator(s)

II. OBJECTIVES AND CONSTRAINTS

A. Objectives (must be specific and measurable)

1. Safety

   - Public

   - Firefighter

2. Economic

3. Environmental

4. Social

5. Other

B. Constraints

This page is completed by the Agency Administrator(s)

III. ALTERNATIVES

	A	B	C
A. Wildland Fire Strategy			
B. Narrative			
C. Resources Needed			
Handcrews	_____	_____	_____
Engines	_____	_____	_____
Dozers	_____	_____	_____
Airtankers	_____	_____	_____
Helicopters	_____	_____	_____
D. Final Size			
E. Estimated Contain/ Control Date			
F. Costs			
G. Risk Assessment			
Probability of Success	_____	_____	_____
Consequences of Failure	_____	_____	_____
H. Complexity			
I.	**Attach maps for each alternative**		

This page is completed by the Agency Administrator(s) and FMO/Incident Commander

IV. EVALUATION OF ALTERNATIVES			
A. Evaluation Process	**A**	**B**	**C**
Safety			
Firefighter	_____	_____	_____
Aviation	_____	_____	_____
Public	_____	_____	_____
Sum of Safety Values			
Economic			
Forage	_____	_____	_____
Improvements	_____	_____	_____
Recreation	_____	_____	_____
Timber	_____	_____	_____
Water	_____	_____	_____
Wilderness	_____	_____	_____
Wildlife	_____	_____	_____
Other (specify)	_____	_____	_____
Sum of Economic Values			
Environmental			
Air	_____	_____	_____
Visual	_____	_____	_____
Fuels	_____	_____	_____
T & E Species	_____	_____	_____
Other (specify)	_____	_____	_____
Sum of Environmental Values			
Social			
Employment	_____	_____	_____
Public Concern	_____	_____	_____
Cultural	_____	_____	_____
Other (specify)	_____	_____	_____
Sum of Social Values			
Other			
This page is completed by the Agency Administrator(s) and FMO/Incident Commander			

V. ANALYSIS SUMMARY

Alternatives	A	B	C
A. Compliance with Objectives			
Safety			
Economic			
Environmental			
Social			
Other (specify)			
B. Pertinent Data			
Final Fire Size			
Complexity			
Suppression Cost			
Resource Values			
Probability of Success			
Consequences of Failure			

C. External/Internal Influences

National & Geographic Preparedness Level: _____

Incident Priority: _____

Resource Availability: _____

Weather Forecast (long range): _____

Fire Behavior Projections: _____

This page is completed by the Agency Administrator(s) and FMO/Incident Commander

VI. DECISION

The Selected Alternative is: _____

Rationale: _____

_____ _____

Agency Administrator's Signature **Date/Time**

This page is completed by the Agency Administrator(s) or designate

VII. DAILY REVIEW

To be reviewed daily to determine if still valid until containment or control

Date	Time	By	PREPAREDNESS LEVEL	INCIDENT PRIORITY	RESOURCE AVAILABILITY	WEATHER FORECAST	FIRE BEHAVIOR PROJECTIONS	WFSA VALID

IF WFSA IS NO LONGER VALID, A NEW WFSA WILL BE COMPLETED!

This page is completed by the Agency Administrator(s) or designate

VIII.	FINAL REVIEW	
The elements of the selected alternative were met on:	_____ Date	_____ Time
By: _____ Agency Administrator(s)		

INSTRUCTIONS

Section I. WFSA Information Page

A. Jurisdiction(s): Assign the agency or agencies that have or could have fire protection responsibility, e.g., USFWS, BLM, etc.

B. Geographic Area: Assign the recognized "Geographic Coordination Area" the fire is located in, e.g., Northwest, Northern Rockies, etc.

C. Unit(s): Designate the local administrative unit(s), e.g., Hart Mountain Refuge Area, Flathead Indian Reservation, etc.

D. WFSA #: Identify the number assigned to the most recent WFSA for this fire.

E. Fire Name: Self-explanatory.

F. Incident #: Identify the incident number assigned to the fire.

G. Accounting Code: Insert the local unit's accounting code.

H. Date/Time Prepared: Self-explanatory.

I. Attachments: Check here to designate items used to complete the WFSA. "Other could include data or models used in the development of the WFSA. Briefly describe the "other" items used.

Section II. Objectives and Constraints

A. Objectives: Specify objectives that must be considered in the development of alternatives. Safety objectives for firefighter, aviation, and public must receive the highest priority. Suppression objectives must relate to resource management objectives in the unit resource management plan.

Economic objectives could include closure of all or portions of an area, thus impacting the public, or impacts to transportation, communication, and resource values.

Environmental objectives could include management objectives for airshed, water quality, wildlife, etc.

Social objectives could include any local attitudes toward fire or smoke that might affect decisions on the fire.

Other objectives might include legal or administrative constraints which would have to be considered in the analysis of the fire situation, such as the need to keep the fire off other agency lands, etc.

B. Constraints: List constraints on wildland fire action. These could include constraints to designated wilderness, wilderness study areas, environmentally or culturally sensitive areas, irreparable damage to resources or smoke management/air quality concerns. Economic constraints, such as public and agency cost, could be considered here.

Section III. Alternatives

A. Wildland Fire Management Strategy: Briefly describe the general wildland fire strategies for each alternative. Alternatives must meet resource management plan objectives.

B. Narrative: Briefly describe each alternative with geographic names, locations, etc., that would be used when implementing a wildland fire strategy. For example: "Contain within the Starvation Meadows' watershed by the first burning period."

C. Resources Needed: Resources described must be reasonable to accomplish the tasks described in Section III.B. It is critical to also look at the reality of the availability of these needed resources.

D. Final Fire Size: Estimated final fire size for each alternative at time of containment.

E. Estimated Contain/Control Date: Estimates of each alternative shall be made based on predicted weather, fire behavior, resource availability, and the effects of suppression efforts.

F. Cost: Estimate all incident costs for each alternative. Consider mop-up, rehabilitation, and other costs as necessary.

G. Risk Assessment - Probability of Success/Consequences of Failure: Describe probability as a percentage and list associated consequences for success and failure. Develop this information from models, practical experience, or other acceptable means. Consequences described will include fire size, days to contain, days to control, costs, and other information such as park closures and effect on critical habitat. Include fire behavior and long-term fire weather forecasts to derive this information.

H. Complexity: Assign the complexity rating calculated in "Fire Complexity Analysis" for each alternative, e.g., Type II, Type I.

I. A map for each alternative should be prepared. The map will be based on the "Probability of Success/Consequences of Failure" and include other relative information.

Section IV. Evaluation of Alternatives

A. Evaluation Process: Conduct an analysis for each element of each objective and each alternative. Objectives shall match those identified in Section II.A. Use the best estimates available and quantify whenever possible. Provide ratings for each alternative and corresponding objective element. Fire effects may be negative, cause no change, or may be positive. Examples are: 1) a system which employs a "-" for negative effect, a "0" for no change, and a "+" for positive effect; 2) a system which uses a numeric factor for importance of the consideration (soils, watershed, political, etc.) and assigns values (such as -1 to +1, - 100 to +100, etc.) to each consideration, then arrives at a weighted average. If you have the ability to estimate dollar amounts for natural resource and cultural values, this data is preferred. Use those methods which are most useful to managers and most appropriate for the situation and agency. To be able to evaluate positive fire effects, the area must be included in the resource management plan and consistent with prescriptions and objectives of the Fire Management Plan.

   Sum of Economic Values: Calculate for each element the net effect of the rating system used for each alternative. This could include the balance of pluses (+) and minuses (-), numerical rating (-3 and +3), or natural and cultural resource values in dollar amounts. (Again, resource benefits may be used as part of the analysis process when the wildland fire is within a prescription consistent with approved Fire Management Plans and in support of the unit's Resource Management Plan.)

Section V. Analysis Summary

A. Compliance with Objectives: Prepare narratives that summarize each alternative's effectiveness in meeting each objective. Alternatives that do not comply with objectives are not acceptable. Narrative could be based on effectiveness and efficiency. For example: "most effective and least efficient," "least effective and most efficient," or "effective and efficient." Or answers could be based on a two-tiered rating system such as "complies with objective" and "fully complies with or exceeds objective." Use a system that best fits the manager's needs.

B. Pertinent Data: Data for this Section has already been presented, and is duplicated here to help the Agency Administrator(s) confirm their selection of an alternative. Final Fire Size is displayed in Section III.D. Complexity is calculated in the attachments and displayed in Section III.H. Costs are displayed on page 4. Probability of Success/Consequences of Failure is calculated in the attachments and displayed in Section III.G.

C. External and Internal Influences: Assign information and data occurring at the time the WFSA is signed. Identify the Preparedness Index (1 through 5) for the National and Geographic levels. If available, indicate the Incident Priority assigned by the MAC Group. Designate the Resource Availability status. This information is available at the Geographic Coordination Center, and is needed to select a viable alternative. Designate "yes," indicating an up-to-date weather forecast has been provided to, and used by, the Agency Administrator(s) to evaluate each alternative. Assign information to the "Other" category as needed by the Agency Administrator(s).

Section IV. Decision

Identify the alternative selected. Must have clear and concise rationale for the decision, and a signature with date and time. Agency Administrator(s) is mandatory.

Section VII. Daily Review

The date, time, and signature of reviewing officials are reported in each column for each day of the incident. The status of Preparedness Level, Incident Priority, Resource Availability, Weather Forecast, and WFSA validity is completed for each day reviewed. Ratings for the Preparedness Level, Incident Priority, Resource Availability, Fire Behavior, and Weather Forecast are addressed in Section V.C. Assign a “yes” under "WFSA Valid" to continue use of this WFSA. A "no" indicates this WFSA is no longer valid and another WFSA must be prepared or the original revised.

Section VIII. Final Review

This Section is completed by the Agency Administrator(s). A signature, date, and time are provided once all conditions of the WFSA are met.

A GUIDE FOR ASSESSING FIRE COMPLEXITY

The following questions are presented as a guide to assist the Agency Administrator(s) and staff in analyzing the complexity or predicted complexity of a wildland fire situation. Because of the time required to assemble or move an Incident Management Team to wildland fire, this checklist should be completed when a wildland fire escapes initial attack and be kept as a part of the fire records. This document is prepared concurrently with the preparation of (and attached to) a new or revised Wildland Fire Situation Analysis. It must be emphasized this analysis should, where possible, be based on predictions to allow adequate time for assembling and transporting the ordered resources.

Use of the Guide:

1. Analyze each element and check the response "yes" or "no."

2. If positive responses exceed, or are equal to, negative responses within any primary factor (A through G), the primary factor should be considered as a positive response.

3. If any three of the primary factors (A through G) are positive responses, this indicates the fire situation is, or is predicted to be, Type I.

4. Factor H should be considered after all the above steps. If more than two of these items are answered "yes," and three or more of the other primary factors are positive responses, a Type I team should be considered. If the composites of H are negative, and there are fewer than three positive responses in the primary factors (A-G), a Type II team should be considered. If the answers to all questions in H are negative, it may be advisable to allow the existing overhead to continue action on the fire.

GLOSSARY OF TERMS

Potential for blow-up conditions - Any combination of fuels, weather, and topography excessively endangering personnel.

Rate or endangered species - Threat to habitat of such species or, in the case of flora, threat to the species itself.

Smoke management - Any situation which creates a significant public response, such as smoke in a metropolitan area or visual pollution in high-use scenic areas.

Extended exposure to unusually hazardous line conditions - Extended burnout or backfire situations, rock slide, cliffs, extremely steep terrain, abnormal fuel situation such as frost killed foliage, etc.

Disputed fire management responsibility - Any wildland fire where responsibility for management is not agreed upon due to lack of agreements or different interpretations, etc.

Disputed fire policy - Differing fire policies between suppression agencies when the fire involves multiple ownership is an example.

Pre-existing controversies - These may or may not be fire management related. Any controversy drawing public attention to an area may present unusual problems to the fire overhead and local management.

Have overhead overextended themselves mentally or physically - This is a critical item that requires judgment by the responsible agency. It is difficult to write guidelines for this judgment because of the wide differences between individuals. If, however, the Agency Administrator feels the existing overhead cannot continue to function efficiently and take safe and aggressive action due to mental or physical reasons, assistance is mandatory.

FIRE COMPLEXITY ANALYSIS

A. FIRE BEHAVIOR: Observed or Predicted **YES/NO**

1. Burning Index (from on-site measurement of weather conditions) predicted to be above the 90% level using the major fuel model in which the fire is burning. _____
2. Potential exists for "blowup" conditions (fuel moisture, winds, etc.). _____
3. Crowning, profuse or long-range spotting. _____
4. Weather forecast indicating no significant relief or worsening conditions. _____

Total _____

B. RESOURCES COMMITTED

1. 200 or more personnel assigned. _____
2. Three or more divisions. _____
3. Wide variety of special support personnel. _____
4. Substantial air operation which is not properly staffed. _____
5. Majority of initial attack resources committed. _____

Total _____

C. RESOURCES THREATENED

1. Urban interface. _____
2. Developments and facilities. _____
3. Restricted, threatened, or endangered species habitat. _____
4. Cultural Sites. _____
5. Unique natural resources, special designation zones, or wilderness. _____
6. Other special resources. _____

Total _____

D. SAFETY **YES/NO**

1. Unusually hazardous fire line conditions. _____
2. Serious accidents or fatalities. _____
3. Threat to safety of visitors from fire and related operations. _____
4. Restricted and/or closures in effect or being considered. _____
5. No night operations in place for safety reasons. _____

Total _____

E. OWNERSHIP

1. Fire burning or threatening more than one jurisdiction. _____
2. Potential for claims (damages). _____
3. Conflicting management objectives. _____
4. Disputes over fire management responsibility. _____
5. Potential for unified command. _____

Total _____

F. EXTERNAL INFLUENCES

1. Controversial wildland fire management policy. _____
2. Pre-existing controversies/relationships. _____
3. Sensitive media relationships. _____
4. Smoke management problems. _____
5. Sensitive political interests. _____
6. Other external influences. _____

Total _____

G. CHANGE **YES/NO**

1. Change in strategy to confine/contain to control. _____
2. Large amount of unburned fuel within planned perimeter. _____
3. WFSA invalid or requires updating. _____

Total _____

H. EXISTING OVERHEAD

Worked two operational periods without achieving initial objectives. _____

Existing management organization ineffective. _____

IMT overextended themselves mentally and/or physically. _____

Incident action plans, briefings, etc. missing or poorly prepared. _____

Total _____

I. SIGNATURE

_____ _____

Name and Title **Date and Time**

APPENDIX M: PILE BURN PLAN TEMPLATE

REFUGE OR STATION:	**UNIT:**

Prepared By:	Prescribed Fire Specialist	Date
Reviewed By:	Refuge Biologist	Date
Reviewed By:	Prescribed Fire Burn Boss	Date
Reviewed By:	Fire Management Officer	Date
Reviewed By:	Biological Investigation Unit	Date
Reviewed By:	Refuge Manager	Date
The approved Pile Burn Plan constitutes the authority to burn, pending approval of Section 7 Consultations, Environmental Assessments or other required documents. No one has the authority to burn without an approved plan or in a manner not in compliance with the approved plan. Pile burning conditions established in the plan are firm limits. Actions taken in compliance with the approved Pile Burn Plan will be fully supported, but personnel will be held accountable for actions taken which are not in compliance with the approved plan.		
Approved By:	Project Leader	Date

PILE BURN PLAN

Note: This plan is intended for burning debris and piles (activity fuels) from refuge operations such as fuel break construction and hazard reduction. This plan format should only be used outside of declared fire season for the area considered. THIS PLAN IS FOR COMPLEXITY LEVEL 3 PILE BURNING.

Refuge:	**Refuge Burn Number:**
Substation:	**Fire Number:**
Name of Area:	**Unit Number:**
Legal Description: T_____ R_____ S_____ Meridian:_____ **Latitude:_____ Longitude:_____**	
County:	**State:**

Checklist:

1. EA optional.
2. Resource objectives.
3. Less than 1 ton per pile, completely dried.
4. Has minimum resources (equipment & personnel) required.
5. Has weather parameters been established
6. Low potential for escape. Good clearance.
7. No fire behavior prediction required
8. Can be written to be good up to 3 years per site, with annual review.
9. Burn day required.
10. Less than (<) one acre in size.
11. Complexity level should rate as level 3
12. Intended for admin sites, campgrounds, occupancy trespass, etc.

Environmental Assessment Met (where documented): _____

Estimated Cost: _____ 1202: _____ Funding Code: _____

Project Area Description (Attach Map of Burn Area)

Burn Objectives:

Number, Species, and Size of Piles:

Adjacent Fuel Description:

Weather Forecasts

The Pile Burn Boss is responsible for weather being taken every hour while burning to ensure prescription compliance. Contact the Emergency Communications Center (ECC) for weather forecasts and burn day designation. Contact ECC by radio when ignition is starting, giving legal description of area burning; and when burning is over, giving number of acres or piles burned.

Prescription: _____

Season of Burn (Fall, Spring, Summer, Winter): _____

		Acceptable Range	Desired
Air Temperature		_____	_____
Relative Humidity		_____	_____
Wind Speed		_____	_____
Fuel Moisture	1 Hour T.L.	_____	_____
	10 Hour T.L.	_____	_____
	100 Hour T.L.	_____	_____
Adjacent Live Fuel Moisture		_____	_____
Wind Direction Preferred		Acceptable: _____	Unacceptable: _____

Smoke Management

Permitting Agency:

Total Tons Per Acre Emissions:

Distance and Direction from Smoke Sensitive Area(s):

Necessary Transport Wind Direction(s):

Visibility Hazard(s) (i.e., roads, airports, etc.):

Actions to Reduce Visibility Hazard(s):

Can Residual Smoke Be a Problem?

Other Considerations:

Special Constraint(s)/Consideration(s):

Firing Technique:

Holding Force Instructions:

Mop Up Instructions

Contact Plan

Who will notify the following and when?

Key People:

Local Landowners:

Private Land Within Proposed Burn (Identify on Map):

Fire Protection Agencies:

Dispatcher:

Public Affairs Officer:

News Releases to Local Papers and News Media:

Safety Plan

All line employees involved in the actual burning of standing and/or piled fuels will have on their person and use as necessary the following protective clothing:

- Hard hat
- Goggles
- Gloves
- Fire resistant pants
- Fire resistant shirt
- Fire shelter
- Laced boots as used in fire suppression

Employees involved in a project with an assignment not related to actual burning should have with them all of the above safety equipment and be so equipped if their unplanned duties expose them to line work and/or the actual burning.

Each burning plan will designate fire safety responsibility. This designation should include the following considerations:

- Escape routes
- Safety areas
- Closest recognized burn treatment facility and specific methods of travel to burn center or hospital

Hospitals

Center Name	Address	Travel Time Air/Ground	Phone	Helipad Yes/No	Burn Yes/No

Medical Emergency Procedures

- Give First Aid at scene.
- Contact Kern County Fire Department
- Make transportation arrangements.

Comments:

Debris & Pile Burning Checklist

A "NO" response to any item means STOP!

	YES	NO
1. Are all fire prescriptions met?		
2. Has dispatch been notified?		
3. Is it a permissive burn day?		
4. Is fire weather forecast favorable?		
5. Are all personnel required in the burn plan on site?		
6. Have all personnel been briefed on the burn plan requirements?		
7. Have all personnel been briefed on safety hazards, escape routes and safety orders?		
8. Is all the required equipment in place an in working order?		
9. Are all personnel aware of mop up requirements before abandonment?		
10. Are all answers to all the above questions "Yes"?		

If all ten questions have been answered "Yes", you may proceed with lighting.

APPENDIX N: PRESCRIBED FIRE INFORMATION REPORT (PIFRS)

PRESCRIBED BURN 209 WORKSHEET (PFIRS)

2. REPORT STATUS (INITIAL, UPDATE, FINAL) INITIAL

3. PROJECT NAME (12) _____

4. INCIDENT # (8) _____ 5. INCIDENT COMMANDER (12) _____

6. JURISDICTION USFWS 7. UNIT _____ 8. BURN TYPE _____

9. LOCATION DESCRIPTION Lat. _____ Long _____

COUNTY CODE VENTURA (XVN) RIVERSIDE (XRI) SAN DIEGO (XSD) _____

NEAREST TOWN (14) _____

10. DATE OF BURN (6) _____ TIME (4) _____

11. IGNITION DEVICE (HF,HT,TT,AD,VP,LR,) (16) _____

FIRE BEHAVIOR (HD,BK,BL,PI) (10) _____

12. AREA INVOLVED (CURRENT ACRES TO BURN TODAY) (20) **ACRES**

13. PERCENT OF TOTAL PROJECT TO BE BURNED (4) ____%

15. ESTIMATE OF CONTROL DATE (6) _____ ESTIMATE CONTROL TIME (4) _____

17. PURPOSE OF BURN (66) _____
(HR HAZARD RED,WL WILDLIFE,SP SITE PREP, AQ AIR QUAL)

18. PROBLEMS (64) _____

25. PRESCRIPTION WIND (4) _____ TEMP:(4) _____ RH: (4) _____%

29. RESOURCES (FWS, LPF,VNC) _____

QUICK ENTRY 2. STANDARD ENTRY 3. END
FWS, EI___, DI___, CI___, HE___, OP___

CNF, EI___, DI___, CI___, HE___, OP___

CDF, EI___, DI___, CI___, HE___, OP___

30. COOPERATORS (52) _____

31.A. AIR BASIN IS IN (06 SAN DIEGO) (05 SOUTH COAST) _____

AIR BASIN SMOKE WILL DRIFT TO (11 DESERT) _____

31.B. TOTAL PROJECT SIZE **ACRES**

31.C. VEGETATION TYPE (CHM,MC,CS,GS,CON,COT) _____

31.D. FUEL INFORMATION %DEAD _____ %LIVE FUEL MOISTURE _____

31.D. TODAY TONS PER ACRE (8) _____

31.E. TODAYS BURN LOWEST ELEVATION _____ HIGHEST ELEVATION _____

31F. AGENCY PROJECT NUMBER (VMP CONTRACT NUMBER) _____

31.G. CONTACT NAME _____ PHONE NUMBER _____

31.H. CURRENT BURN UNIT STATUS,(CA)Cancelled,(CO)Complete,(AC)Active _____

31.I. BURNED ACRES TO DATE _____

32. PREPARED NAME _____

APPENDIX O: MONITORING PLAN

REGION 1 – Hopper Mountain National Wildlife Refuge Complex

The following are the recommended standards to be used when planning, implementing, and evaluating prescribed burns. These should be viewed as minimum values to be monitored and the information contained in this check list incorporated into a monitoring record sheet.

Planning and Preparation

Environmental Conditions Prior to the Burn

_____ Photo Points Established

_____ Fuel

- _____ Model(s)
- _____ Loading (By Size Class)
- _____ % Cover (Type/Model)
- _____ Continuity
- _____ Crown ratio
- _____ Depth of Fuel Bed
- _____ Other

_____ Air Temperature (Maximum - Minimum to develop trends)

_____ Relative Humidity (Maximum - Minimum to develop trends)

_____ Wind Speed and Direction (Eye-level/20 Foot)

_____ Fuel Moisture

- _____ Dead Fuel Moisture (Use of fuel sticks and/or drying oven)
- _____ Live Fuel Moisture (Fuel Models 2,4,5,7,10)

_____ Soil Moisture (Dry, Moist, Wet)

_____ Drought Indicator (Track One or More)

Execution

Environmental Conditions During the Burn

_____ Date/Time

_____ Air Temperature (Every 30 minutes)

_____ Relative Humidity (Every 30 minutes)

_____ Wind Speed and Direction (Eye Level) (Every 30 minutes)

_____ Cloud Cover

_____ Fuel Moisture (Indicate How Determined: Calculated, Actual)

- _____ Dead Fuel Moisture (Using above values, calculate every 30 minutes utilizing Tables and Worksheets, Nomograms, BEHAVE, etc.)
- _____ Live Fuel Moisture (Fuel Models 2,4,5,7,10 - Collect immediately prior to the burn and evaluate later)

Fire Behavior

_____ Flame length (Head, Flank, Backing)

_____ Rate of Spread (Forward, Flank, Backing)

_____ Resistance to Control

_____ Spotting Distance

Smoke/Air Quality

_____ Mixing/Dispersal (Good, Fair, Poor)

_____ Trajectory of Column (Surface/Upper Level)

_____ Duration (Active Burning/Smoldering)

_____ Problems

Note: It is recommended that photos be taken to document smoke dispersal.

Post Burn

First Order Fire Effects

_____ Photo Point

_____ Percent of Area Burned

_____ Percent of Fuels Consumed (By Fuel Loading Size Class, when possible)

_____ Percent of Thatch/Duff Consumed

_____ Scorch Height

_____ Mortality

Note: The information in the first two categories will be used to determine the amount of particulate matter produced, and may/will be used by State Air Quality Regulators.

APPENDIX P: ANNUAL REFRESHER ACTIVITIES

Hopper Mountain National Wildlife Refuge

Annual Refresher Training

All personnel involved in Fire Management activities are required to participate in 8 hours of fire management refresher training annually in order to be qualified for fire management activities in that calendar year. Refresher training will concentrate on local conditions and factors, the Standard Fire Orders, LCES, 18 Situations, and Common Dominators. NWCG courses *Standards for Survival*, *Lessons Learned*, *Look Up, Look Down, Look Around*, and others meet the firefighter safety requirement; but, efforts will be made to vary the training and use all or portions of other NWCG courses to cover the required topics. Fire shelter use and deployment under adverse conditions, if possible, must be included as part of the annual refresher.

Physical Fitness

All personnel involved in fire management activities will meet the fitness standards established by the Service and Region. At this point in time, firefighters participating in wildland fire suppression must achieve and maintain an Arduous rating. Firefighters participating in Prescribed Burns must achieve and maintain a Moderate rating. Information found in Appendix F provides specific instructions to administer the tests, a health screening questionnaire to aid in assessing personal health and fitness of employees prior to taking the test, an informed consent form, and safety considerations. A trained and qualified American Red Cross Responder (or equivalent) who can recognize symptoms of physical distress and appropriate first aid procedures must be on site during the test.

Wildland fire fitness tests shall not be administered to anyone who has obvious physical conditions or known heart problems that would place them at risk. All individuals are required to complete a pre-test physical activity readiness questionnaire prior to taking a physical fitness test. They must read and sign the Par-Q health screening questionnaire, an informed consent form (Appendix F). If an employee cannot answer NO to all the questions in the PAR-Q health screening questionnaire, or is over 40 years of age, unaccustomed to vigorous exercise, and testing to achieve a Moderate or Light rating, the test administrator will recommend a physical examination. As noted below, all individuals over 40 years of age must receive an annual physical prior to physical testing.

Physical Examinations

A physical examination using SF-78 and BLM supplemental form 1400-108 is required for all persons involved in wildland firefighting or prescribed burning PRIOR TO the fitness test. A physical examine must be completed every 3 years for PFT and returning employees. Exceptions to this is if the supervisors questions the persons physical condition. All individuals involved in arduous fire management activities over the age 40 or newly hired are required to complete an annual physical fitness examination. The cost of examination will be born by the Service and the results sent to the Region Personnel Department.

APPENDIX Q: FIRE DISPATCH PLAN

HOPPER MOUNTAIN NATIONAL WILDLIFE REFUGE

FIRE DISPATCH PLAN

Updated: September 2001

When a report of smoke or fire on or near the Refuge is received, the person taking the report will proceed with the following steps.

1. Get as much information as possible from the person making the report.
    - Name and telephone number of the individual
    - Location of the individual
    - Location of the fire or smoke
    - Color of the smoke (grey, white, or black)
    - Size of the fire (acres)
    - Type of fuel (grass or brush)
    - Character of the fire (running, smoldering, flame height)
    - Persons already fighting the fire
    - Any persons or vehicles seen in the vicinity of the fire

2. Call 911 immediately.
3. Notify the Refuge Manager and accomplish their instructions as necessary.
4. Remain on duty, as necessary, to maintain a log of all radio and telephone communications relative to the fire.
5. Notify Fire Management Officer.
6. Refuge Manager or representative will proceed to fire location for size up and resource needs.
7. Qualified refuge staff will respond with appropriate equipment to begin suppression actions.

PHONE DIRECTORY

All Emergencies	**911**
US Forest Service, Los Padres N.F.	(805) 681-2781
Ventura County Fire Department	(805) 524-0586
Hopper Mountain NWR, Ventura	(805) 644-5185
Hopper Ranch	(805) 524-0355
Ventura Field Office	(805) 644-5185
Ventura Co. Air Pollution Control Dist.	(805) 645-1412

Regional Fire Management

Pam Ensley	(503) 231-6174
Andy Anderson	(530) 231-6175
Roddy Baumann	(530) 231-2075

Zone Fire Management Officers

Bill Molumby- Southern California	(619) 669-6651
Roger Wong- Central California	(209) 826-3508

FWS Fire Management Coordinator NIFC

Roger Erb	(208) 387-5596
Roger Spaulding	(208) 387-5712

APPENDIX R: POST BURN REPORT

NAME OF BURN: ACRES:

FUEL TYPE: PURPOSE:

DI-1202: BURN BOSS:

MONITORING PLAN REFERENCE:

CRITIQUE OF BURN

Were burn objectives within acceptable range of results?

What would be done differently to obtain results or get better results?

Was there any deviation from plan? If so, why?

Problems and general comments:

ATTACHMENTS:

WEATHER OBSERVATIONS
FIRE BEHAVIOR OBSERVATIONS
COST WORKSHEET
MAP
PHOTOGRAPHS

REQUEST FOR CULTURAL RESOURCE COMPLIANCE

Project Name: _____

USFWS Unit: _____

Org Code: _____

Ecoregion: _____
(By ARD; CBE, IPE, KCE, NCE)

Program: _____
(Partners, WSECP, Refuges, Hatcheries, Jobs, Federal Aid, Other)

NHPA COMPLIANCE

❑ Appendix _____ Item _____
of the Programmatic Agreement applies.

❑ 36CFR800.4 to 800.6 applies.

_____ _____
Cultural Resources Team Date

Location: _____ **County:** _____ **State:** _____
(nearest town)

Township(s): _____ **Range(s):** _____ **Section(s):** _____ **Meridian:** _____

7.5' USGS Quad(s): _____
(Name, Date)

Project acres or linear meters/feet: _____

Date you want to start the project: _____ **Date of this request:** _____

USFWS Contact: _____ **Phone:** _____

Address: _____ **Fax:** _____

Directions to project (if not obvious):

Attach to this form:

- A **project (sketch) map** showing the Area of Potential Effect with locations of specific ground altering activities *(required)*.
- A **photocopy** of the **USGS quad** clearly marking the project area *(required)*.
- A **photocopy** of an **air photo** showing the project may be attached *(if available)*.

Return form and direct questions to:

USFWS Region 1 Cultural Resources Team
c/o Tualatin River NWR
20555 SW Gerda Lane
Sherwood, OR 97140

Phone: (503) 625-4377
Fax: (503) 625-4887

The Undertaking: *Describe the proposed project and means to facilitate it (e.g., provide funds to revegetate 1 mile of riparian habitat, restore 250 acres of seasonal wetlands, and construct a 5-acre permanent pond). How is the project designed (e.g., install 2 miles of fence and create approximately 25 feet of 3 foot high check dam)?*

Area of Potential Effect: *Describe where disturbance of the ground will occur. What are the dimensions of the area to be disturbed? How deep will you excavate? How long is the ditch, fence, etc? Where will fill be obtained? Where will spoil be dumped? What tools or equipment will be used? Are you replacing or repairing a structure? Are you moving dirt in a relatively undisturbed area? Will the project reach below or beyond the limits of prior land disturbance? Differentiate between areas slated for earth movement versus areas to be inundated only. Is the area to be inundated different from the area inundated today, in the recent past, or under natural conditions? Provide acres and/or linear meters or feet for all elements of the undertaking.*

Environmental Setting: *Describe the environmental setting of the Area of Potential Effect. A) What was the natural habitat prior to modifications, reclamation, agriculture, settlement? B) What is the land-use history? When was it first settled, modified? How deep has it been cultivated? Grazed? etc. C) What is the land-use and habitat today? What natural agents (e.g., sedimentation, or vegetation) or cultural agents (e.g., cultivation) might affect the ability to discover cultural resources? D) Do you (or does anybody else) know of cultural resources in or near the project area?*

APPENDIX T: RETARDANT AND FOAM GUIDELINES

Guidelines for Aerial Delivery of Retardant or Foam near Waterways

Definition:

WATERWAY – Any body of water including lakes, rivers, streams and ponds whether or not they contain aquatic life.

NOTE: Ecological Services includes springs, seeps, or intermittent streams within the definition of waterway.

Guidelines:
Avoid aerial application of retardant or foam within 300 feet of waterways.

These guidelines do not require the helicopter or airtanker pilot-in-command to fly in such a way as to endanger his or her aircraft, other aircraft, or structures or compromise ground personnel safety.

Guidance for pilots: To meet the 300-foot buffer zone guideline, implement the following:

Medium/Heavy Airtankers: When approaching a waterway visible to the pilot, the pilot shall terminate the application of retardant approximately 300 feet before reaching the waterway. When flying over a waterway, pilots shall wait one second after crossing the far bank or shore of a waterway before applying retardant. Pilots shall make adjustments for airspeed and ambient conditions such as wind to avoid the application of retardant within the 300-foot buffer zone.

Single Engine Airtankers: When approaching a waterway visible to the pilot, the pilot shall terminate application of retardant or foam approximately 300 feet before reaching the waterway. When flying over a waterway, the pilot shall not begin application of foam or retardant until 300 feet after crossing the far bank or shore. The pilot shall make adjustments for airspeed and ambient conditions such as wind to avoid the application of retardant within the 300-foot buffer zone.

Helicopters: When approaching a waterway visible to the pilot, the pilot shall terminate the application of retardant or foams 300 feet before reaching the waterway. When flying over a waterway, pilots shall wait five seconds after crossing the far bank or shore before applying the retardant or foam. Pilots shall make adjustments for airspeed and ambient conditions such as wind to avoid the application of retardant or foam within the 300-foot buffer zone.

Exceptions:

When alternative line construction tactics are not available due to terrain constraints, congested area, life and property concerns or lack of ground personnel, it is acceptable to anchor the foam or retardant application to the waterway. When anchoring a retardant or foam line to a waterway, use the most accurate method of delivery in order to minimize placement of retardant or foam in the waterway (e.g., a helicopter rather than a heavy airtanker).

Deviations from these guidelines are acceptable when life or property is threatened and the use of retardant or foam can be reasonably expected to alleviate the threat.

When potential damage to natural resources outweighs possible loss of aquatic life, the unit administrator may approve a deviation from these guidelines.

Threatened and Endangered (T&E) Species:

The following provisions are guidance for complying with the emergency section 7 consultation procedures of the ESA with respect to aquatic species. These provisions do not alter or diminish an action agency's responsibilities under the ESA.

Where aquatic T&E species or their habitats are potentially affected by aerial application of retardant or foam, the following additional procedures apply:

1. As soon as practicable after the aerial application of retardant or foam near waterways, determine whether the aerial application has caused any adverse effects to a T&E species or their habitat. This can be accomplished by the following:

    a. Aerial application of retardant or foam outside 300 ft of a waterway is presumed to avoid adverse effects to aquatic species and no further consultation for aquatic species is necessary.

    b. Aerial application of retardant or foam within 300 ft of a waterway requires that the unit administrator determine whether there have been any adverse effects to T&E species within the waterway.

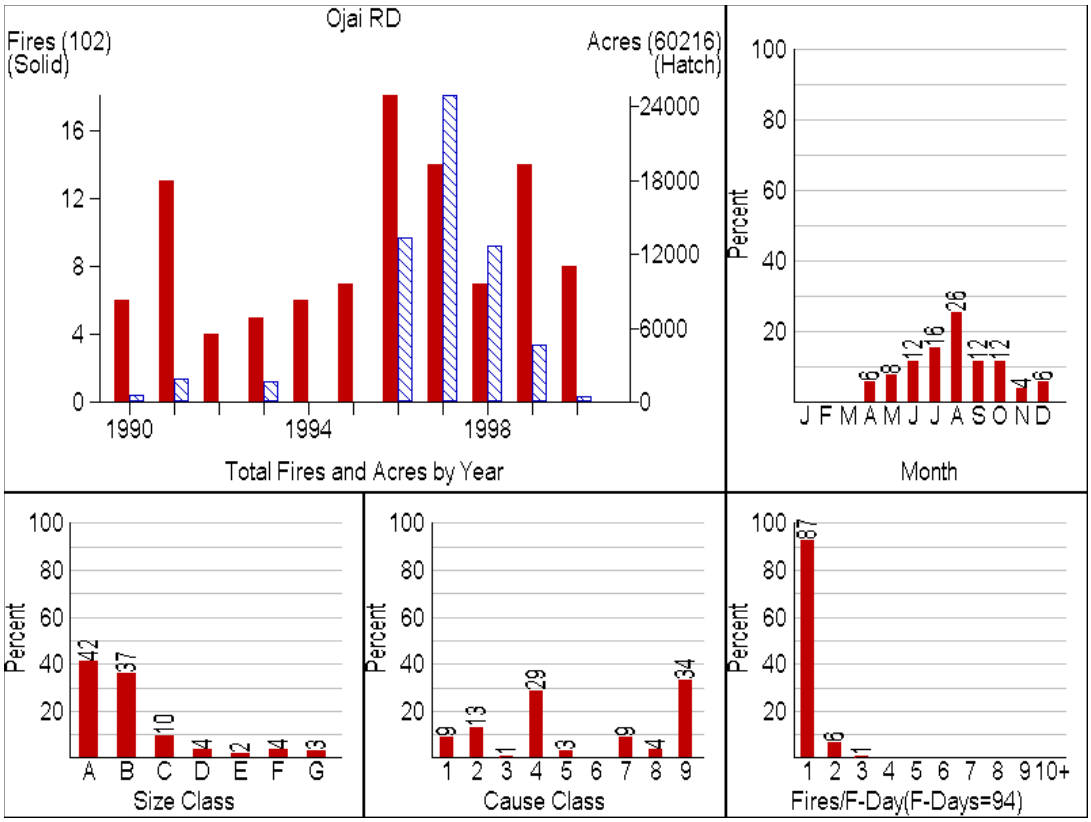
    These procedures shall be documented in the initial or subsequent fire reports.

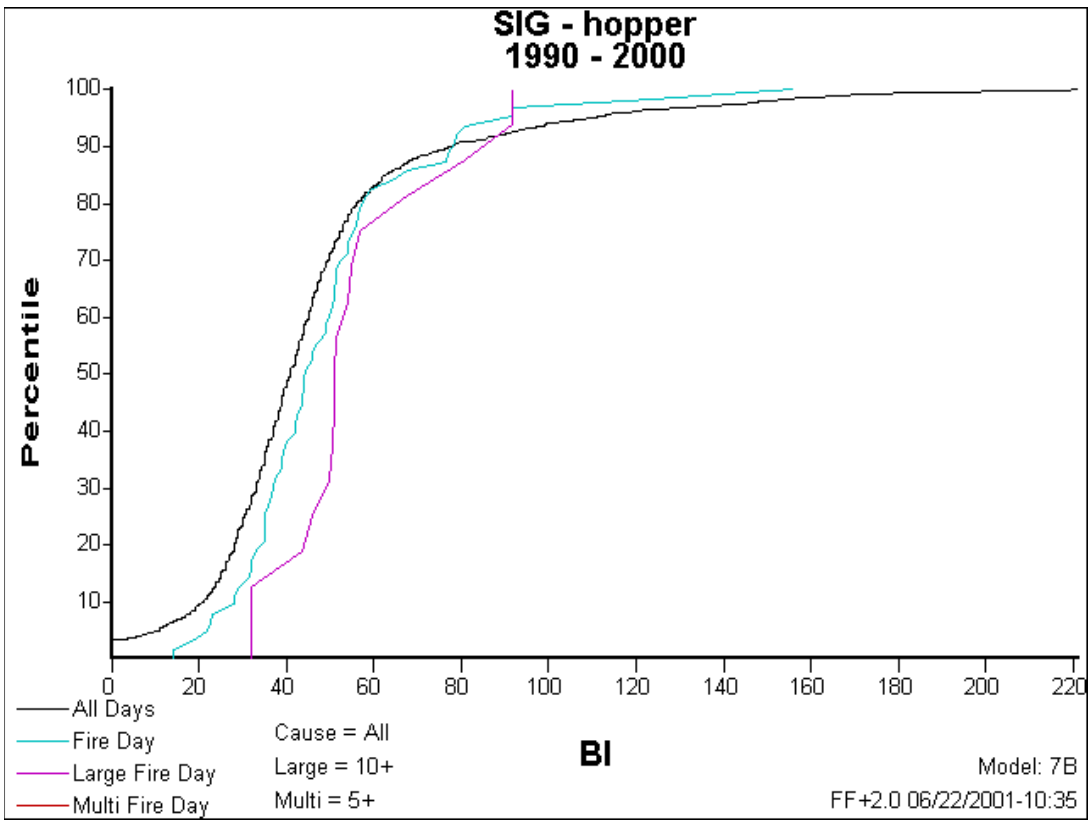
2. If there were no adverse effects to aquatic T&E species or their habitats, there is no additional requirement to consult on aquatic species with Fish and Wildlife Service (FWS) or National Marine Fisheries Service (NMFS).

3. If the action agency determines that there were adverse effects on T&E species or their habitats then the action agency must consult with FWS and NMFS, as required by 50 CFR 402.05 (Emergencies). Procedures for emergency consultation are described in the Interagency Consultation Handbook, Chapter 8 (March, 1998). In the case of a long duration incident, emergency consultation should be initiated as soon as practical during the event. Otherwise, post-event consultation is appropriate. The initiation of the consultation is the responsibility of the unit administrator.

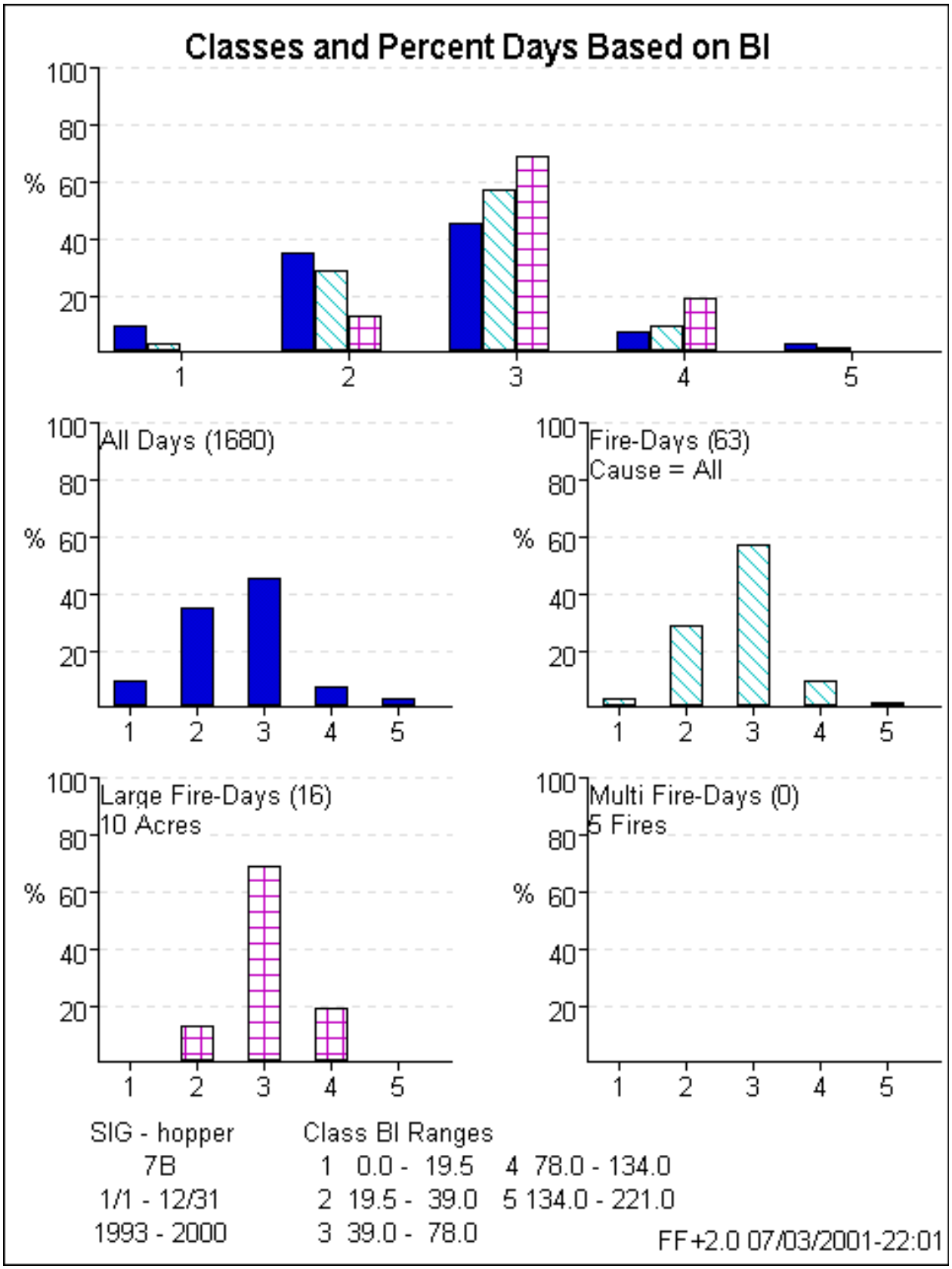
Each agency will be responsible for insuring that the appropriate guides and training manuals reflect these guidelines.

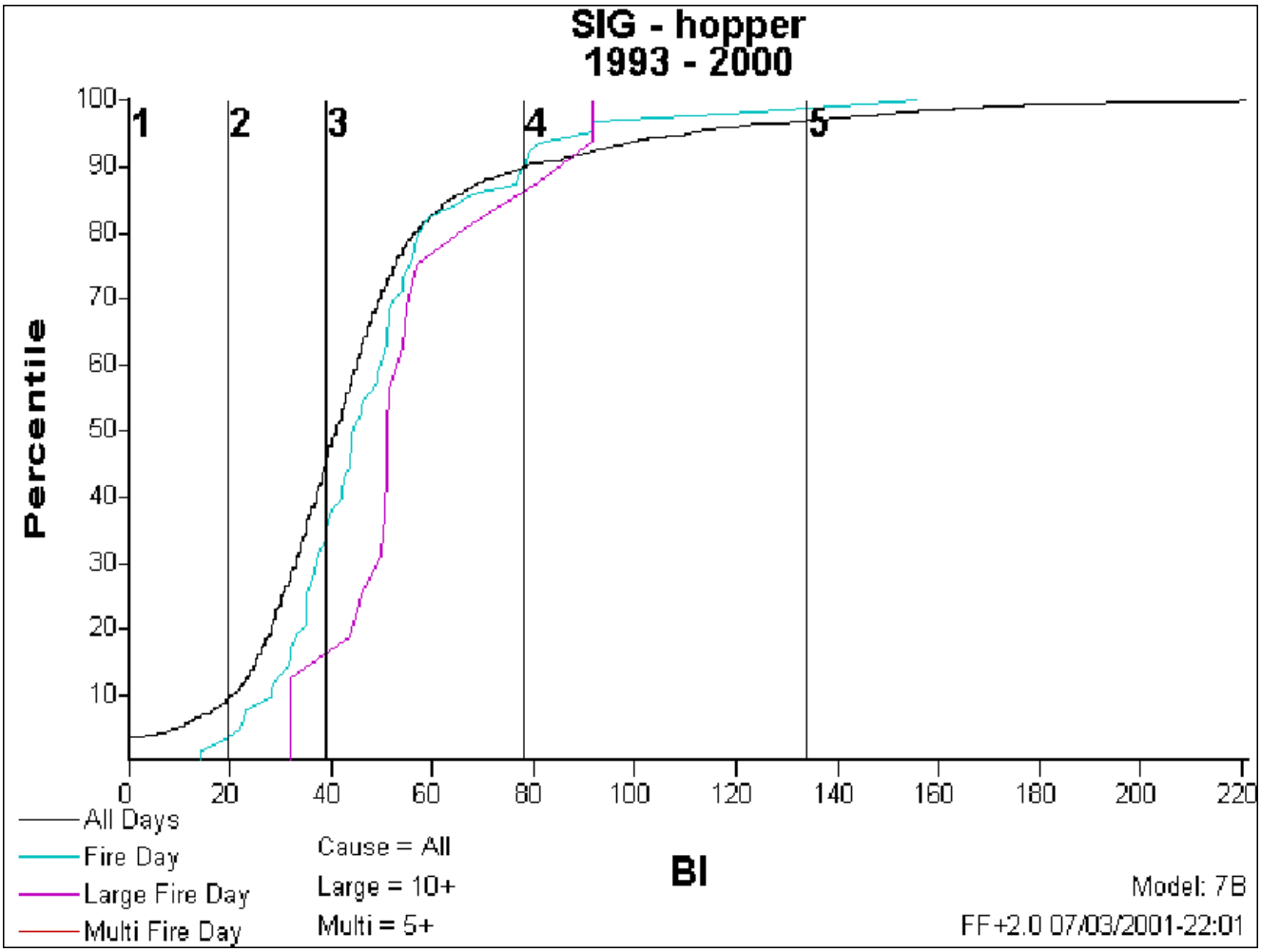
APPENDIX U: WILDLAND FIRE STATISTICS FOR OJAI RANGER DISTRICT





APPENDIX V: STAFFING BREAK POINTS




SIG - hopper
1993 - 2000
Percentile
100
90
80
70
60
50
40
30
20
10
1
2
3
4
5
0
20
40
60
80
100
120
140
160
180
200
220
BI
All Days
Fire Day
Large Fire Day
Multi Fire Day
Cause = All
Large = 10+
Multi = 5+
Model: 7B
FF+2.0 07/03/2001-22:01

APPENDIX W: POST-FIRE REGENERATION STUDY OF CALIFORNIA BLACK WALNUT TREES

RESEARCH AND INVESTIGATION:

Graduate student Victoria Tenbrink, from California Polytechnic State University at Pomona, conducted post-fire research on the Hopper Mtn. Refuge for her master's thesis entitled "Early Fate of *Juglans californica* var. *californica* (Juglandaceae), The Southern California Black Walnut, Following Wildfire." The project began in October 1997 and was completed September 1998. Tenbrink conducted her studies at 3 different locations in southern California, one of which included 3 transects of California black walnut trees at Hopper Mountain NWR.

The role of fire in southern California ecosystems is currently a topic of intense study. Hopper Mtn. NWR offers protected habitat for the rare California black walnut tree and other endemic plant species. The August 1997 fire heavily impacted the entire food web. Tenbrink's research study provides vital information on the effects to the food web, the primary producers, including the walnut tree and associated plant community. The information from her findings will be important in future decision-making relating to both fire management and the use of fire as a tool in ecosystem management.

Post-Fire Regeneration Study of California Black Walnut Trees (*Juglans californica*):

The following information is a brief description of Graduate Student Victoria Tenbrink's research thesis, describing objectives, procedures, results, and conclusions.

Objectives:

The objectives of the study were to evaluate several groves of California black walnut trees (*Juglans californica*), including 3 groves at Hopper Mtn. NWR which burned in the August 1997 Hopper fire incident, and were spared in the October 1998 Piru fire incident. The study was a Master's degree research project that intended to:

- Characterize the nature of walnut tree regeneration;
- Quantify re-sprouting of individual walnut trees in relation to fire damage;
- Document first year phenology of fire damaged trees;
- Document sprouting walnut seeds and survivability;
- Monitor regeneration of endemic plant species in the walnut under-story;
- Search for differences in under-story regeneration in relation to degrees of burn sustained by over-story trees;
- Compare the regeneration of the shrub and herbaceous plant layers occurring under the walnut canopy with that outside of the canopy;
- Record any post-fire regeneration of parasitic mistletoe (*Phoradendron*).

Justification:

The Nature Conservancy Heritage Program ranks the California black walnut tree as "rare" and the woodlands as "very threatened", with 2,000 to 10,000 acres remaining in California (Sawyer, J.O. & T. Keeler-Wolf 1995). The trees are fire adapted, but little has been documented on the regeneration following a fire. Hopper Mtn. NWR offered the ideal opportunity to study the nature of California walnut trees first-year response to fire.

Tenbrink also followed the regeneration of the associated, endemic plant community. Replacement of native herbaceous plant species with Eurasian species is widespread in California. Eurasian plant species invasion has not been completely documented in the walnut under-story, and no post-fire documentation has been published. She also followed the regeneration of mistletoe that plagued the trees prior to the fire in August 1997.

Knowledge gained from Victoria's objectives, specifically regeneration of walnuts after fire, the character of the associated plant community, and the presence of native plant species, can be used in making long-term management decisions for walnut woodlands at Hopper Mtn. NWR.

Procedure:

The project was initiated in mid-October 1997 and completed in September 1998. A master's thesis was then completed by early 1999. The study involved evaluating walnut stands surrounding Hopper Mtn. NWR's ranch house. The study plots were delineated by survey flags and tape, and individual trees were marked with removable identification markers. With permission from Project Leader Marc Weitzel, Victoria Tenbrink collected two to three plants per species for identification and future reference; the collected specimens are being preserved and stored at the Cal. Poly. Herbarium. Walnut phenology data was recorded each month, and data for herbaceous plants was kept during the spring flowering period. All of the collected data were analyzed by appropriate methods, including contingency tables to correlate regeneration with severity of damage, regression analysis to analyze rate of regeneration, and classification and ordination to characterize patterns in the regenerating shrubby and herbaceous plant communities.

Final Results and Conclusions from the Study:

The study indicates that southern California black walnut woodlands are tolerant of the current southern California fire regime.

Herbivory by deer did not appear to inhibit post-fire recovery of California black walnut trees at Hopper Mtn. NWR.

Seven trees infested with mistletoe were evaluated. Mistletoe grew back in two cases at one site.

Soil profiles did not show enrichment of the soils by fire one year after the burn.

Species richness in the under-story was rated as high at Hopper Mtn. NWR.

The woodlands showed characteristics of disturbance adaptation, especially the ability to regenerate vegetatively.

The structure of *Juglans californica* woodlands varied in tree size, number of trunks per individual, tree density, and basal area coverage.

Tree survival on each transect exceeded 92%. Overall survival for the 104 trees evaluated at Hopper Mtn. NWR was 95.8%, while overall tree survival for a total of 224 trees evaluated at all 3 locations in southern California was 97%.

Crowns of *J. californica* var. *californica* were fire sensitive. Recovery after fire was predominantly by basal sprouting from an excess number of adventitious buds stored below ground on the root crown. Trees that were not top-killed sprouted from adventitious buds on the branches.

Basal shoot growth averaged as high as 0.92cm per day in the first year. On all transects, mean height of basal shoots exceeded 2m at the end of the first year, with some shoots exceeding 4 m.

Flowering and fruiting occurred in the first year after the August 1997 fire. There was no evidence of a successful seed crop at any of the sites.

Damage scores were poor predictors of survival which depended not only on fire damage, but also on site-specific and other unidentified tree-specific factors.

Basal sprouting increased significantly with increased crown and trunk damage.

Nutrient profiles of leaves showed enhancement of phosphorus and magnesium levels by fire.

FIRE AND SAFETY PROTOCOLS

EMERGENCY RESPONSE PLAN FOR THE CALIFORNIA CONDOR RECOVERY PROGRAM AT THE HOPPER MOUTAIN NATIONAL WILDLIFE REFUGE AND SESPE CONDOR SANCTUARY

(AUGUST 1993 VERSION)

(INSERT)

APPENDIX Y: HUMAN/CONDOR EMERGENCY RESCUE PROTOCOL FOR HOPPER MTN. NWR

Human / Condor Emergency Rescue Protocol for Hopper Mountain N.W.R.

21 April, 1997 - Cindy Newton

On 19 April, 1997, I drove to the Ventura County Sheriff's Heliport in Camarillo to meet with the Aviation Unit, whose base is located near Point Mugu. These pilots/police officers are responsible for search and rescue missions and would be our contacts in case of an emergency at the refuge.

Pilot, Mike Mason, and Crew Chief, Brett Uhlich, flew me up to the refuge in a small helicopter, 'copter 4, and we landed near the house 12 minutes after lift off. After going over maps in the ranch house, we spent the day flying to various locations in the refuge boundaries to map landing sites for emergency evacuations. I informed the officers that we were currently not working in the Arundell Release Site area and that our primary work locations were the ranch house and the pens. Mike Mason took GPS readings and recorded the coordinates for the ranch and pens under the heading "Condor 1."

We located Helipad # 1, which is located on the knoll near the windmill at the ranch and would be reported as "Condor 1." We cleared the top of the knoll, lined the site in white rocks and it is permanently labeled with a yellow, numbered square of plastic affixed to the ground. The site was extremely easy to identify from the air. We searched for the yellow patches that identified our previously established Helipads #2 and #3, but we were unable to locate them. We flew along the dirt road that leads to the Arundell Release Site and found two locations along that stretch that would be easily accessible for the helicopters to land, should we use this location again in the future. "Condor 2" landing location is located at the repeaters (you will see tall antenna-looking poles sticking out of the brush on the left side of the road) and where the survey markers are located. "Condor 3" is further up the road near the trailer and is a large, cleared spot on the left side of the road. "Condor 4" is the Arundell Release Site Cliff at the hack box. "Condor 5" is the condor holding pen. We will probably never use Condor 2 - 5, but the information is permanently loaded into their system should these locations become active in the future.

The following information should be posted near the phones and carried with your cell phones in your vehicles:

GPS Location	**Site**	**Coordinates**			
****Condor 1**	**Ranch house**	**north** **west**	**34 degrees** **118 degrees**	**27 minutes** **51 minutes**	**42 seconds** **08 seconds**
Condor 2	dirt road leading to the Arundell Site at the survey markers and repeater	north west	34 degrees 118 degrees	28 minutes 51 minutes	61 seconds 93 seconds
Condor 3	dirt road leading to the Arundell Site near the trailer	north west	34 degrees 118 degrees	29 minutes 51 minutes	27 seconds 66 seconds
Condor 4	Arundell Cliff Site	north west	34 degrees 118 degrees	31 minutes 51 minutes	05 seconds 43 seconds
Condor 5	Condor Holding Pen (Arundell Site ridge)	north west	34 degrees 118 degrees	30 minutes 52 minutes	03 seconds 00 seconds

Instructions:

In case of a serious injury to personnel or condor, call the Aviation Unit's crew first at (805) 388-4212 and inform the pilots of your emergency and need. You can call them directly at their base and they will either inform you to then call the Captain or they will do this themselves.

If you need to evacuate the birds, request the "Hueys" ('copters 5, 6 or 7) and tell them to remove the seats. I estimated that three kennels could be fit into one of these larger helicopters and 'copter 7 has the most cargo space.

The larger helicopters ('copters 5, 6 and 7) can respond and be at the ranch within approximately 30 minutes during the day. Response time at night is an estimated 40 minutes.

The small, 2-passenger helicopter ('copter 4) can respond and be at the ranch within 20 minutes during the day and within an estimated 30 minutes at night.

Give the pilot your location using the GPS locations listed above.

Example: You have a snake bite victim. Call the Aviation Unit and say, "This is Cindy at Hopper Mountain NWR, with the Condor Project. We have a snake bite victim that needs transport. We are at **Condor 1, the ranch house (or the pens)**. (Ask if they need coordinates and if you should call the Captain or if they will handle this)." They will give you instructions at this time.

Aviation Crew Members:

Captain Bill Boyd

Paul Worthy - Sargent

Tim Hagle - Crew Chief - primary contact

Brett Uhlich - Crew Chief / Major Crimes officer

Frank Underlin - Crew Chief

Greg Chase - Crew Chief

Dan Shea - Chief Pilot

Mike Mason - Pilot

Jim Dalton - Pilot

Dave Nadon - Pilot

Steve Franks - Chief Paramedic

Earl Matthews - Paramedic

Address and Phone Number:

Ventura County Sheriff's Dept.
Aviation Unit
375 Durley Avenue
Suite A
Hangar 3
Camarillo, CA. 93010
(805) 388-4212

Directions to the Aviation Unit's Helipad in Camarillo:

101 south to the Los Posas exit
turn right on Los Posas toward the airport and Point Mugu
turn right onto Pleasant Valley Road
turn right onto Eubanks Road
turn right at the third right side road and you will see the Sheriff's Academy and the helicopters